

Service Manual



ORDER NO.
ARP3102

DIGITAL CATV CONVERTER

BD-V3501

BD-V3510

BD-V3511

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model			Power Requirement	Remarks
	BD-V3501	BD-V3510	BD-V3511		
KUXJ	○	—	—	AC120V	
KUCXJ	—	○	○	AC120V	

- Refer to the “Service Know-how (SKB02008)” for the details about the 6. ADJUSTMENT and 7.1.1 TROUBLESHOOTING.

CONTENTS

1. SAFETY INFORMATION	2
2. EXPLODED VIEWS AND PARTS LIST	3
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM	6
4. PCB CONNECTION DIAGRAM	34
5. PCB PARTS LIST	40
6. ADJUSTMENT	43
7. GENERAL INFORMATION	44
7.1 DIAGNOSIS	44
7.1.1 TROUBLESHOOTING	44
7.2 IC	44
7.3 MOUNTING CONDITION FOR BGA AND NOTE FOR HANDLING UPC1663GV	73
8. PANEL FACILITIES AND SPECIFICATIONS	74

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.



WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65



NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

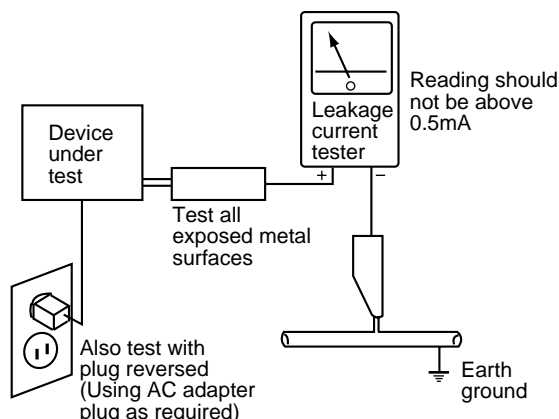
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

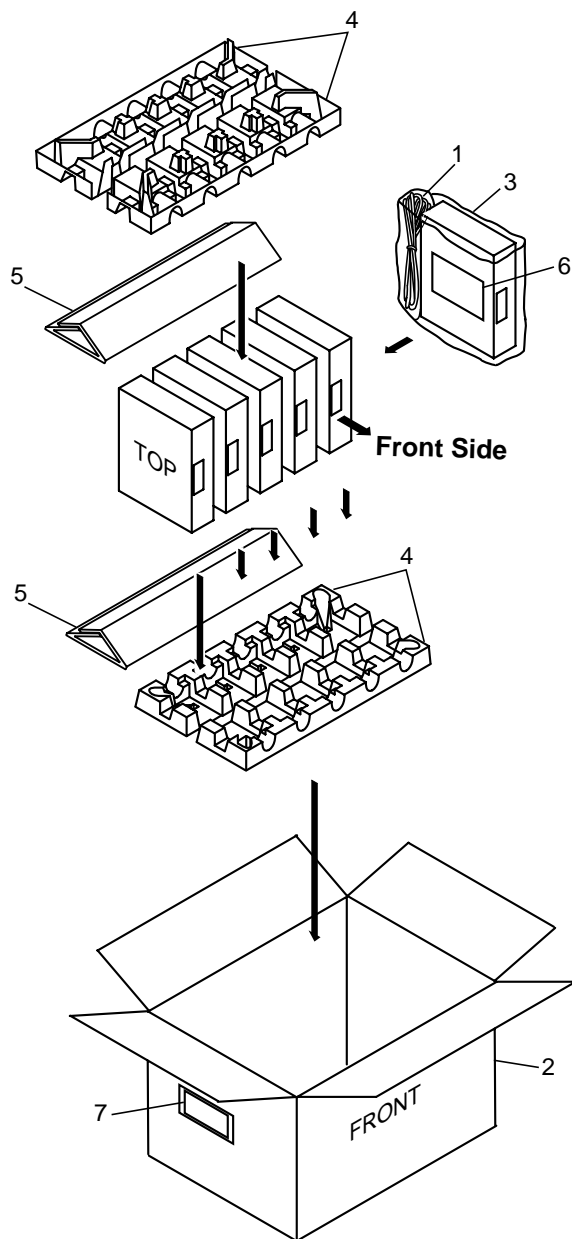
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS AND PARTS LIST

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
● The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
● Screws adjacent to ▼ mark on the product are used for disassembly.

2.1 PACKING



(1) PACKING PARTS LIST

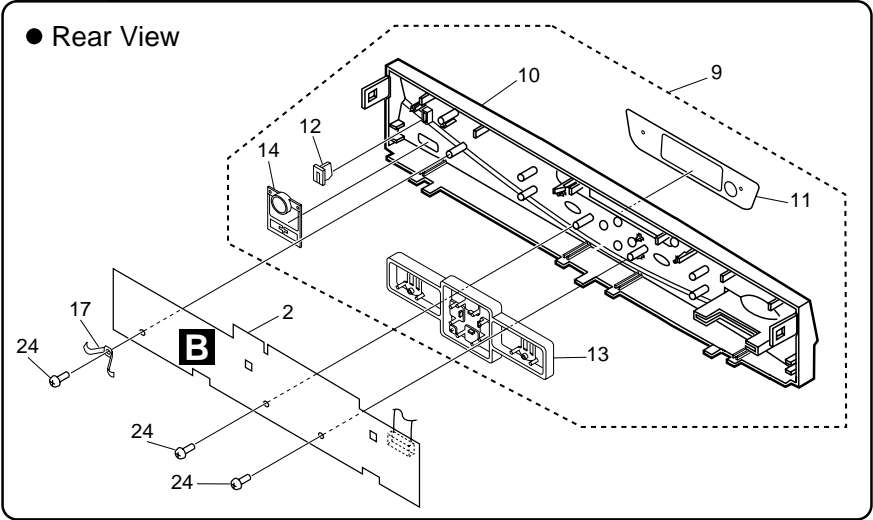
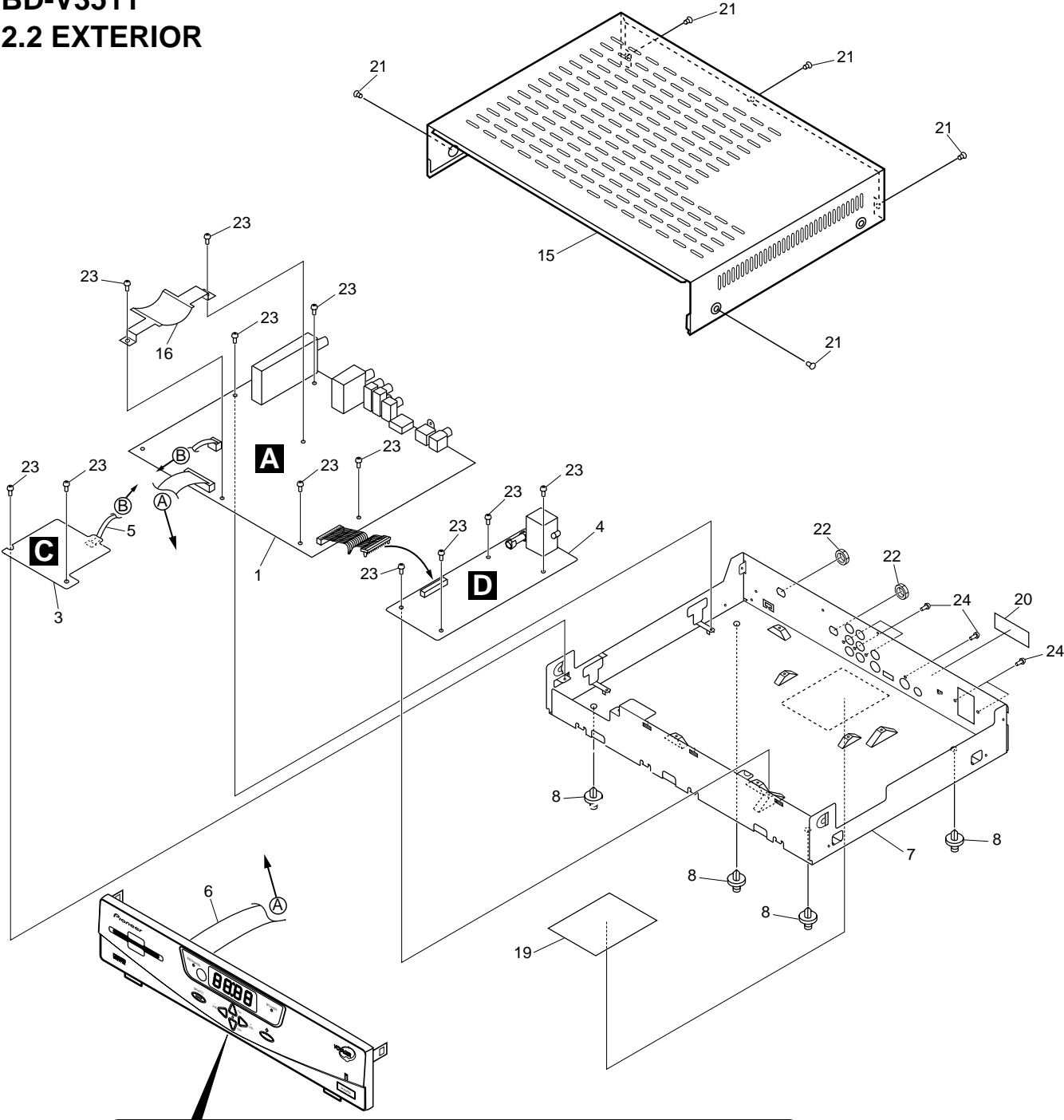
Mark	No.	Description	Part No.
Δ	1	AC Power Cord	ADG7022
	2	Packing Case	See Contrast table(2)
	3	Packing Bag	BHG1068
	4	Pulp Mold	BHX1021
	5	Packing Spacer	BHA1154
	6	Operating Instructions (English)	See Contrast table(2)
	6	Operating Instructions (English,French)	See Contrast table(2)
NSP	7	Carton Bar-code Label	BAL1332

(2) CONTRAST TABLE

BD-V3501/KUXJ, BD-V3510/KUCXJ and BD-V3511/KUCXJ are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.			Remarks
			BD-V3501/KUXJ	BD-V3510/KUCXJ	BD-V3511/KUCXJ	
	2	Packing Case	BHD1504	BHD1506	BHD1505	
	6	Operating Instructions(English)	BRB1059	Not used	Not used	
	6	Operating Instructions(English,French)	Not used	BRE1018	BRE1018	

BD-V3501, BD-V3510
BD-V3511
2.2 EXTERIOR



(1) EXTERIOR PARTS LIST

Mark	No.	Description	Part No.
	1	MAIN ASSY	See Contrast table(2)
	2	FRONT PANEL ASSY (PCB)	BWZ1913
	3	CARD ASSY	BWZ1914
△	4	POWER SUPPLY MODULE	BXF1147
	5	6P FFC (J9002) (CARD CN4202 ↔ MAIN CN1681)	BDD1048
	6	19P FFC (J9001) (FRONT PANEL CN4103 ↔ MAIN CN1921)	BDD1049
	7	Chassis	BNA1160
	8	Leg Assy	BEC1015
	9	Front Panel Assy	See Contrast table(2)
NSP	10	Front Panel	See Contrast table(2)
NSP	11	Display Panel	BAK1189
NSP	12	Indicator Lens	BAK1180
NSP	13	Station Knob	BAD1151
NSP	14	POWER SW Knob	BAD1152
	15	Bonnet	BNE1134
	16	Heat Sink	BNG1335
	17	Ground Plate	BNG1336
	18	
NSP	19	Name Label	See Contrast table(2)
NSP	20	Main Barcode Label	BAL1331
	21	Screw	BBA1062
	22	Nut	BBN1005
	23	Screw	BBZ30P060FMC
	24	Screw	BBZ30P080FZK

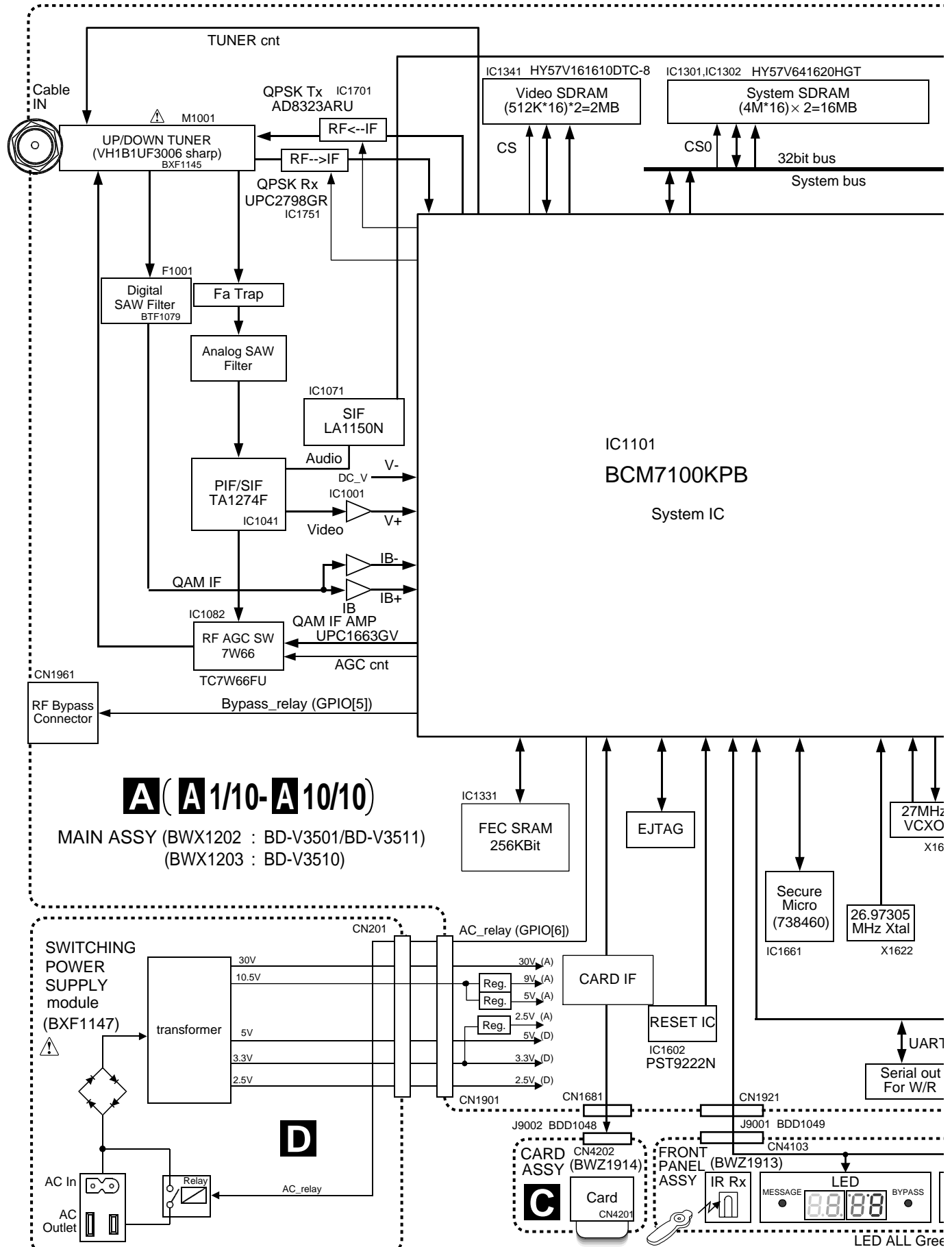
(2) CONTRAST TABLE

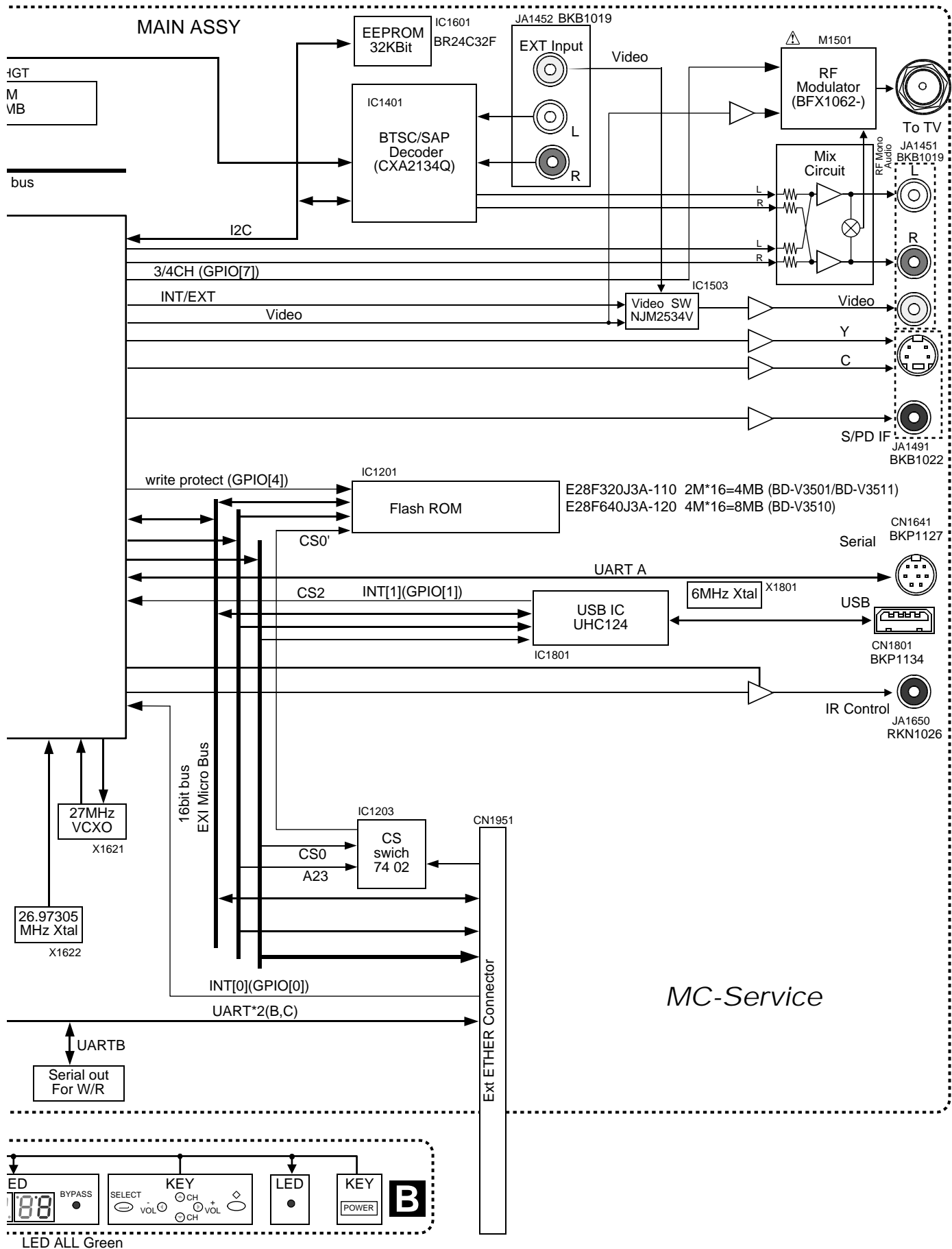
BD-V3501/KUXJ, BD-V3510/KUCXJ and BD-V3511/KUCXJ are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.			Remarks
			BD-V3501/KUXJ	BD-V3510/KUCXJ	BD-V3511/KUCXJ	
	1	MAIN ASSY	BWX1202	BWX1203	BWX1202	
NSP	9	Front Panel Assy	BMB1167	BMB1168	BMB1168	
NSP	10	Front Panel	BMB1165	BMB1166	BMB1166	
	19	Name Label	BAL1431	BAL1433	BAL1432	

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

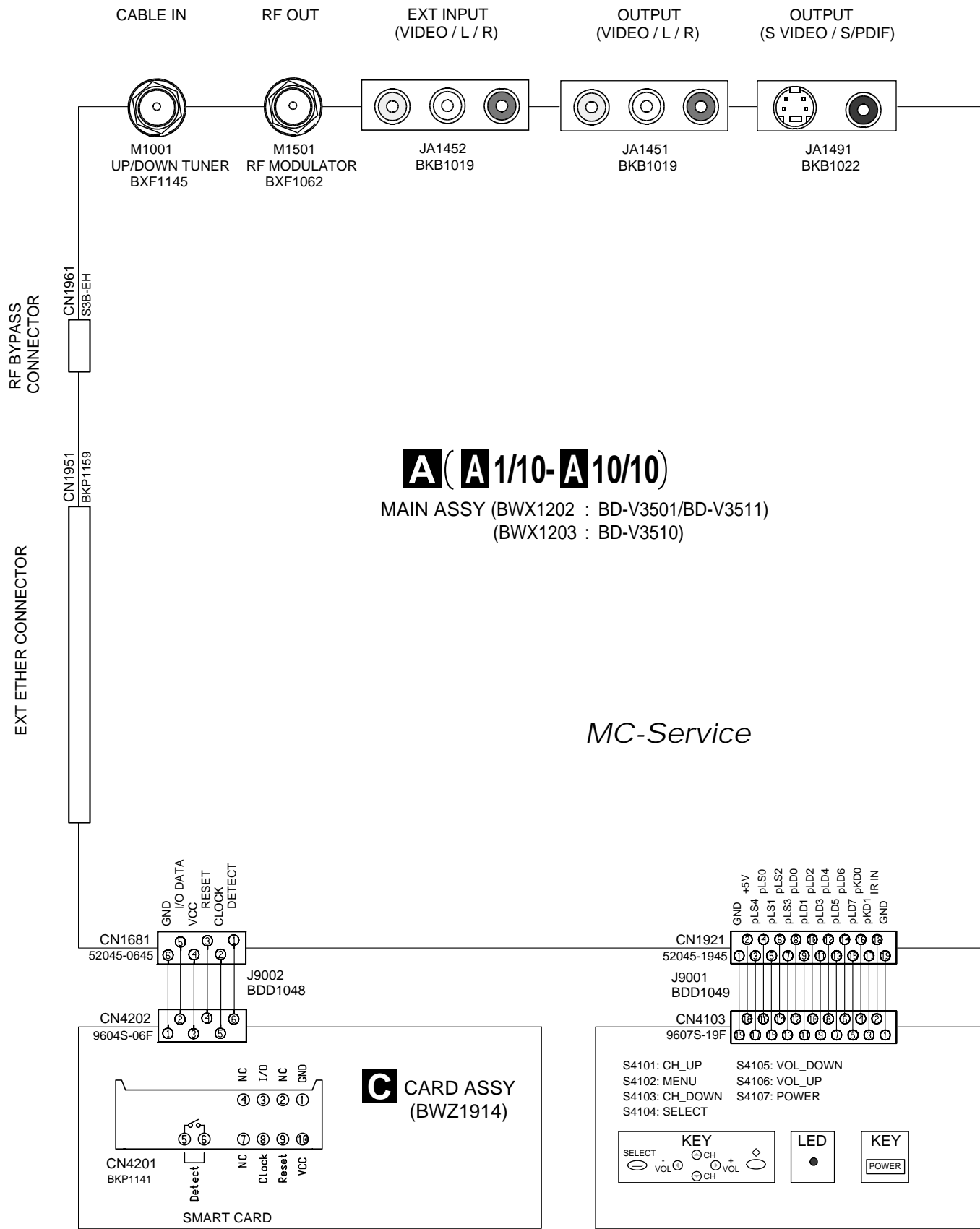
3.1 BLOCK DIAGRAM





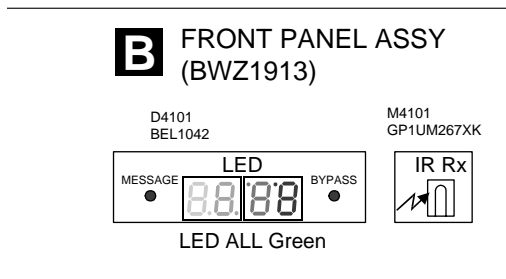
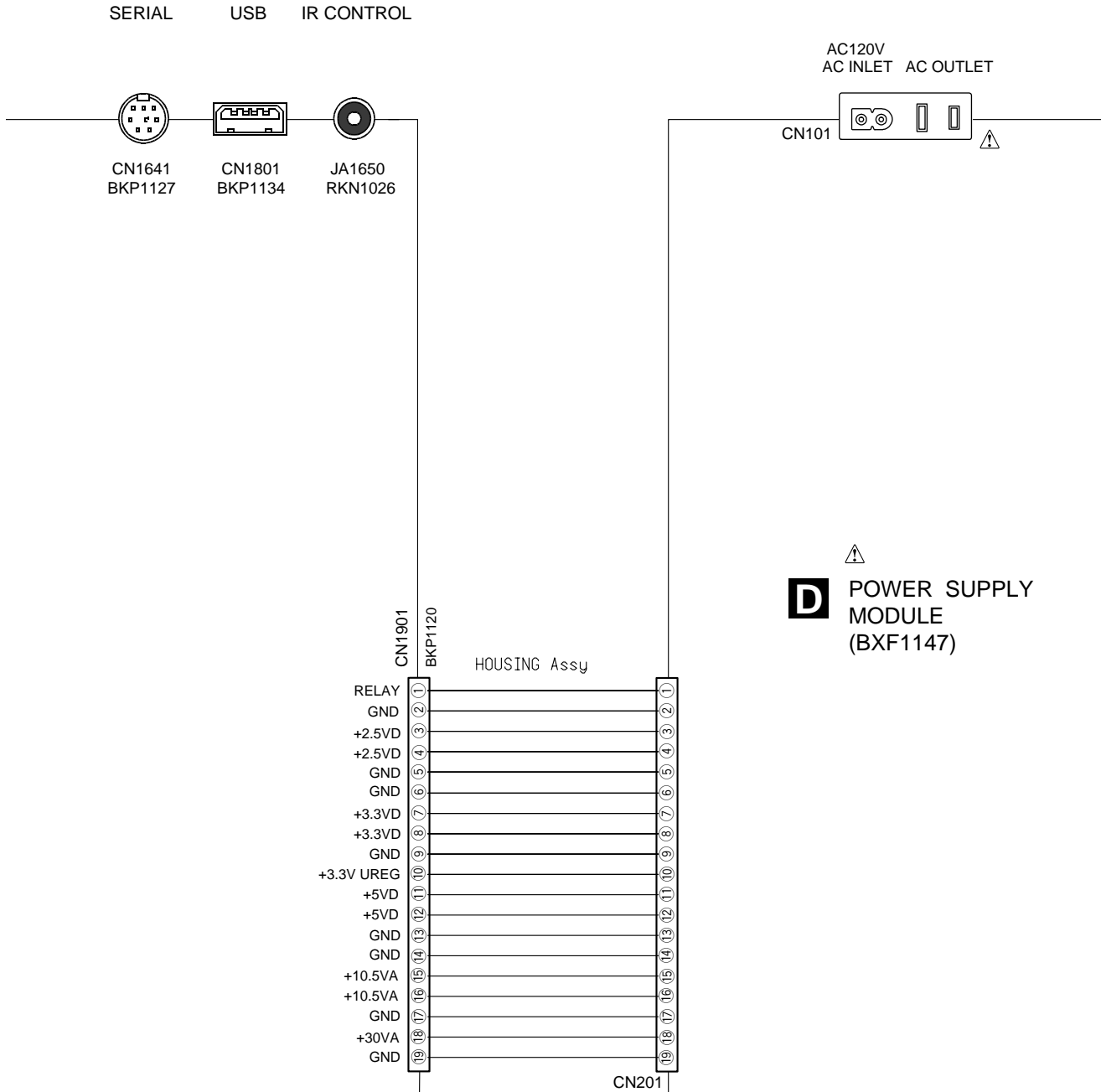
BD-V3501, BD-V3510
BD-V3511

3.2 OVERALL WIRING DIAGRAM



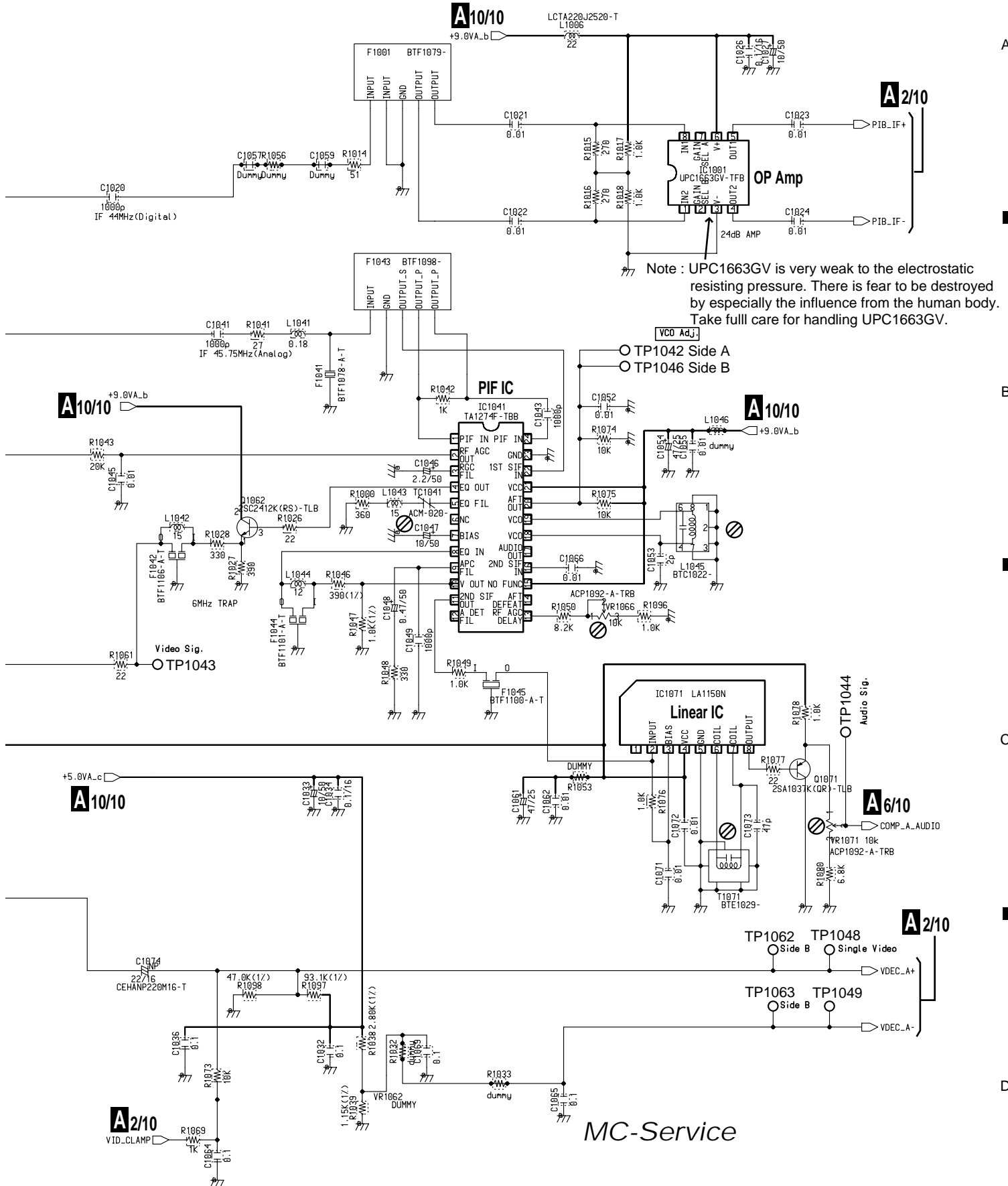
BD-V3510, BD-V3510 BD-V3511

Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



MC-Service

BD-V3501, BD-V3510 BD-V3511



MC-Service

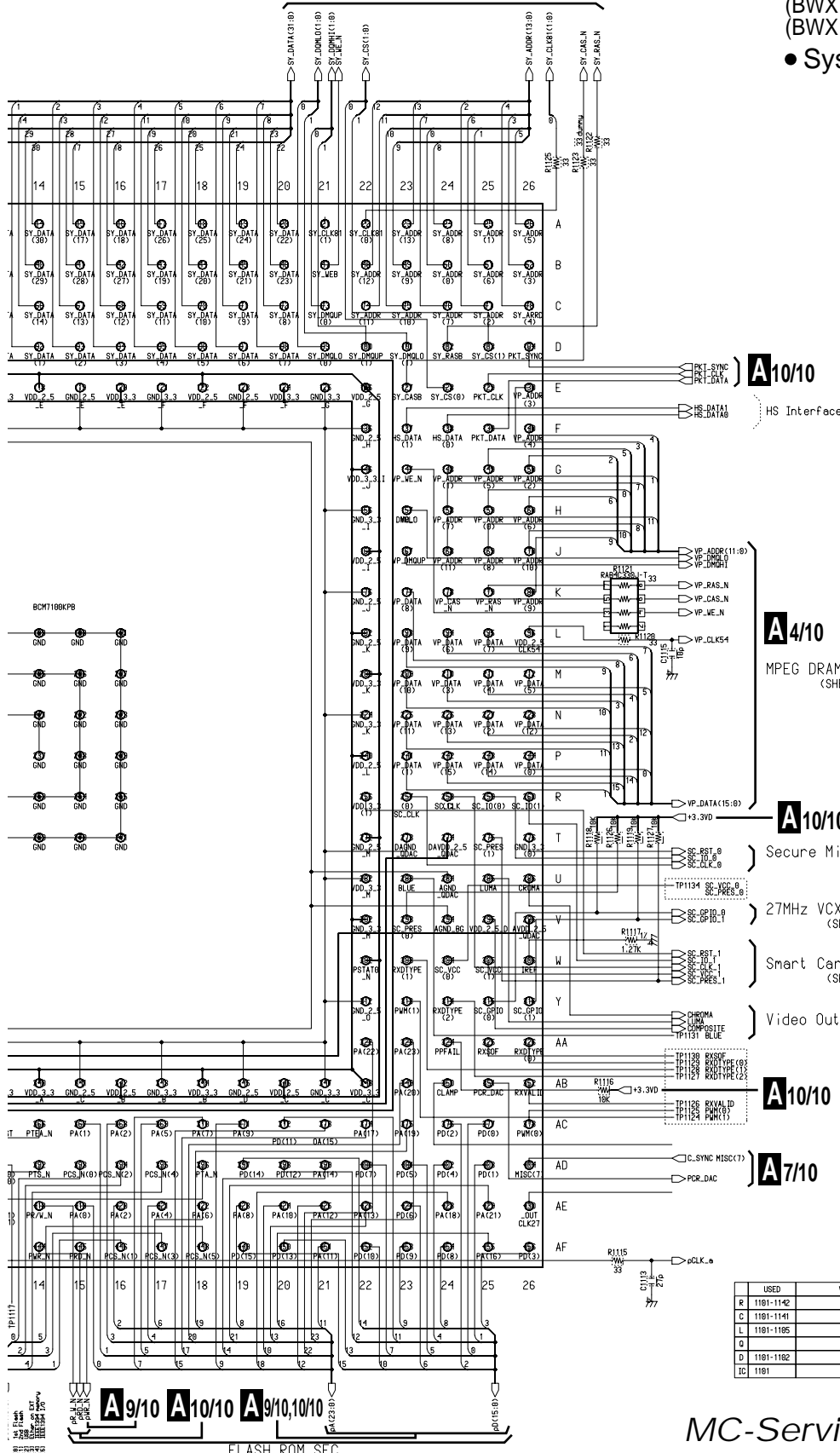
12



MC-Service

A4/10 SYSTEM DRAM SEC.
(SHEET_4)

A2/10 MAIN ASSY (2/10)
(BWV1202 : BD-V3501/BD-V3511)
(BWV1203 : BD-V3510)
● System IC BLOCK



A10/10

A4/10

A10/10

Secure Micro SEC.
(SHEET_7)

A7/10 27MHz VCXO SEC.
(SHEET_7)

Smart Card SEC.
(SHEET_7)

A5/10 Video Output SEC.
(SHEET_5)

A10/10

A7/10

USED	VACANT
R 1101-1142	
C 1101-1141	
L 1101-1105	
Q 1101-1102	
D 1101-1102	
IC 1101	

MC-Service

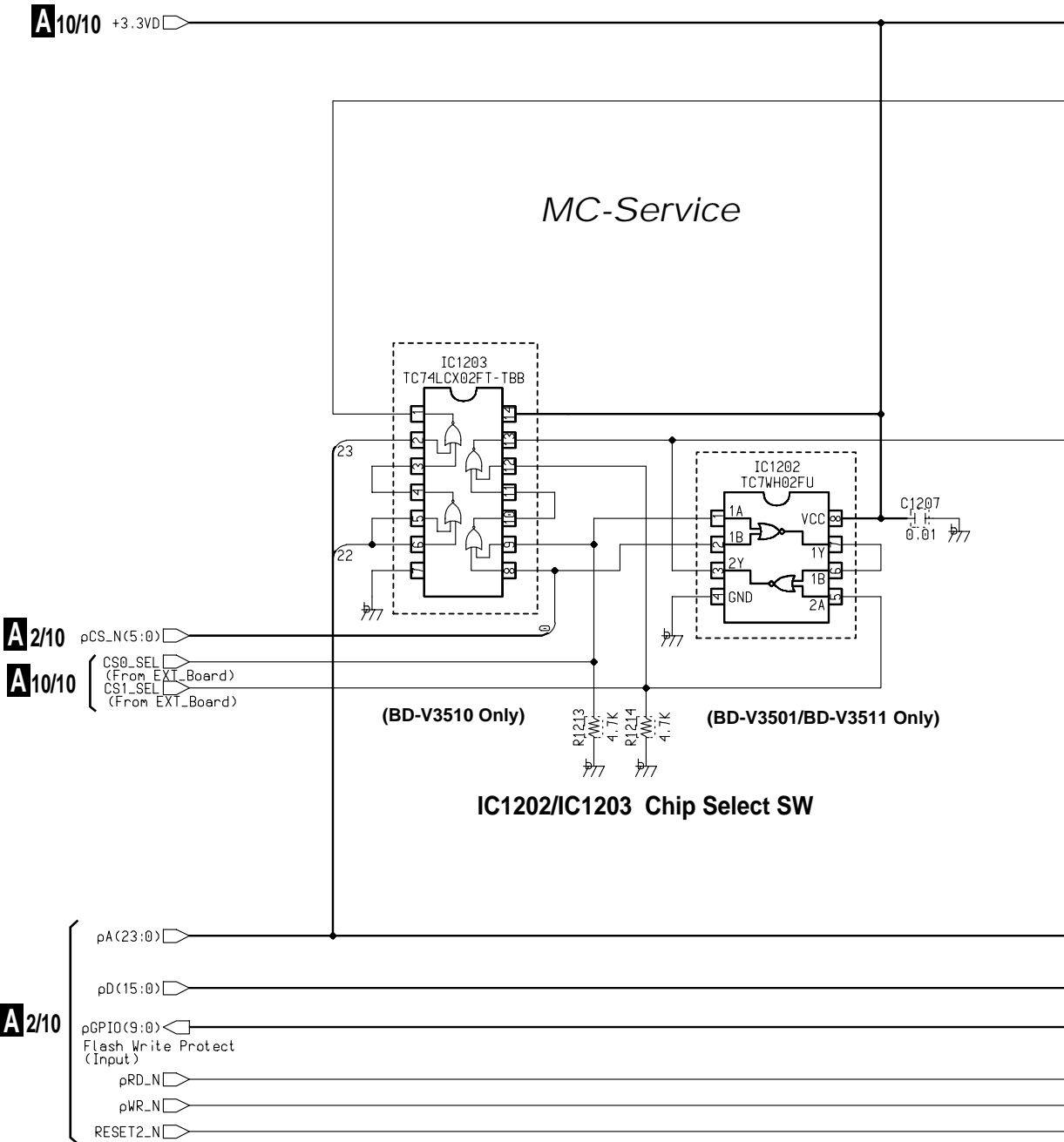
BD-V3501, BD-V3510
BD-V3511

3.5 MAIN ASSY(3/10)

- A

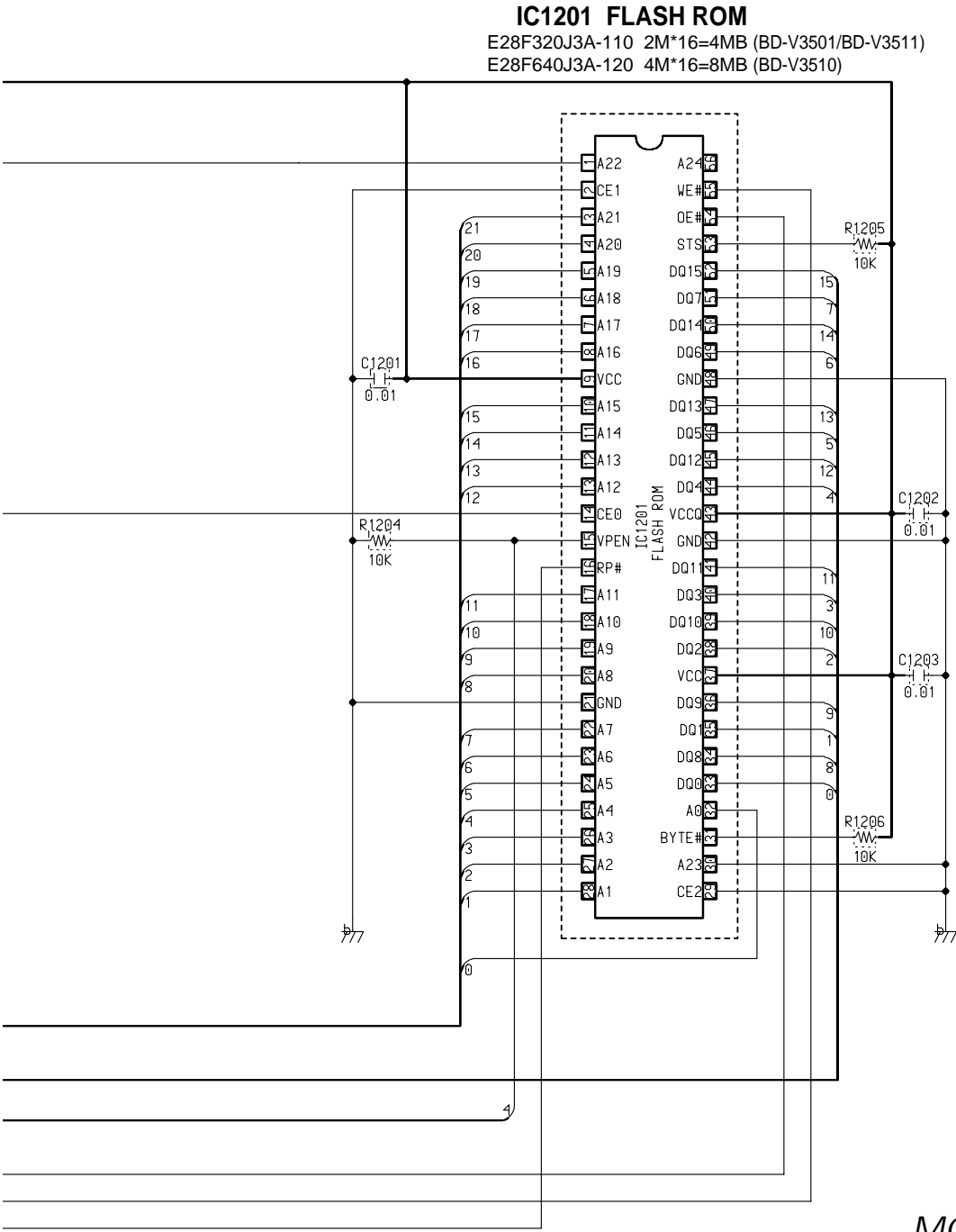
3/10

MAIN ASSY (3/10)
(BWX1202 : BD-V3501/BD-V3511)
(BWX1203 : BD-V3510)
●FLASH ROM BLOCK



IC1201/IC1202/IC1203 CONTRAST TABLE

MODEL No.	Assy No.	Flash ROM Size	Part Number(IC1201)	Chip Select SW	Front Logo
BD-V3501/KUXJ	BWX1202	32Mbit	E28F320J3A-110	IC1202	T/W Print
BD-V3511/KUCXJ	BWX1202	32Mbit	E28F320J3A-110	IC1202	Voyager Print
BD-V3510/KUCXJ	BWX1203	64Mbit	E28F640J3A-120	IC1203	Voyager Print



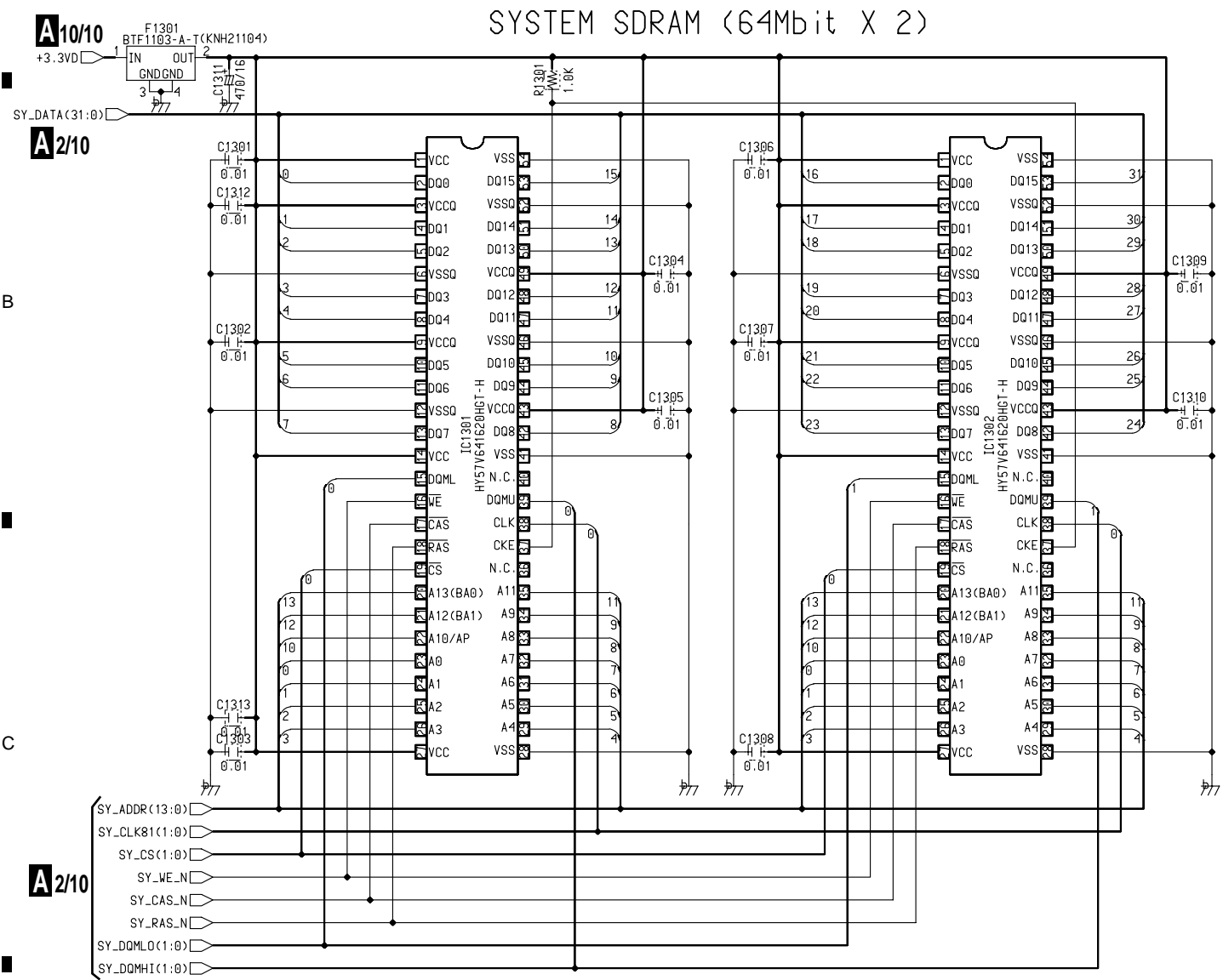
MC-Service

	USED	VACANT
R	1204-1214	1208-1212
C	1201-1207	1204-1205
L		
Q		
D		
IC	1201-1203	

BD-V3501, BD-V3510
BD-V3511

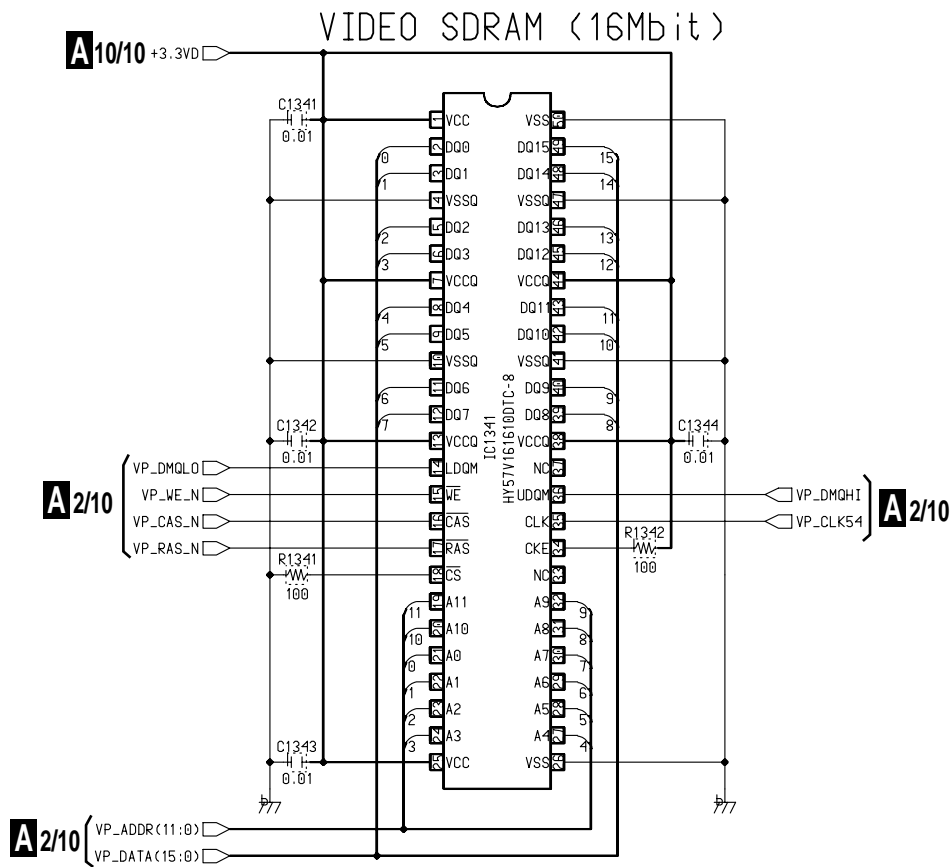
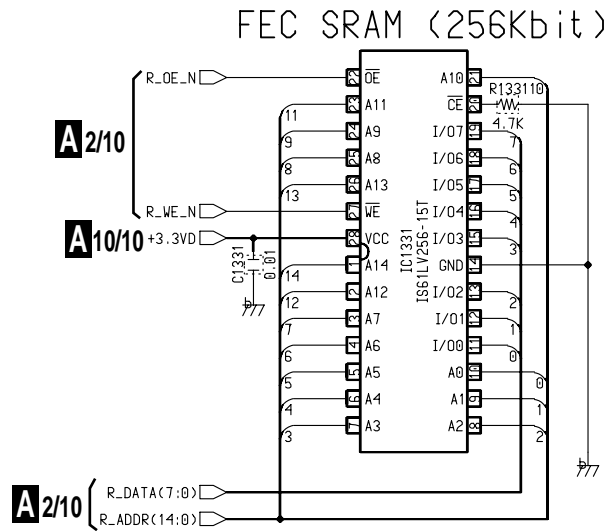
3.6 MAIN ASSY(4/10)

- A 4/10** MAIN ASSY (4/10)
(BWV1202 : BD-V3501/BD-V3511)
(BWV1203 : BD-V3510)
•SDRAM, FEC SRAM BLOCK



MC-Service

	USED	VACANT
R	1301-1343	1303-1330,1332-1340
C	1301-1344	1314-1330,1332-1340
L		
Q		
D		
IC	1301-1341	1303-1330,1332-1340



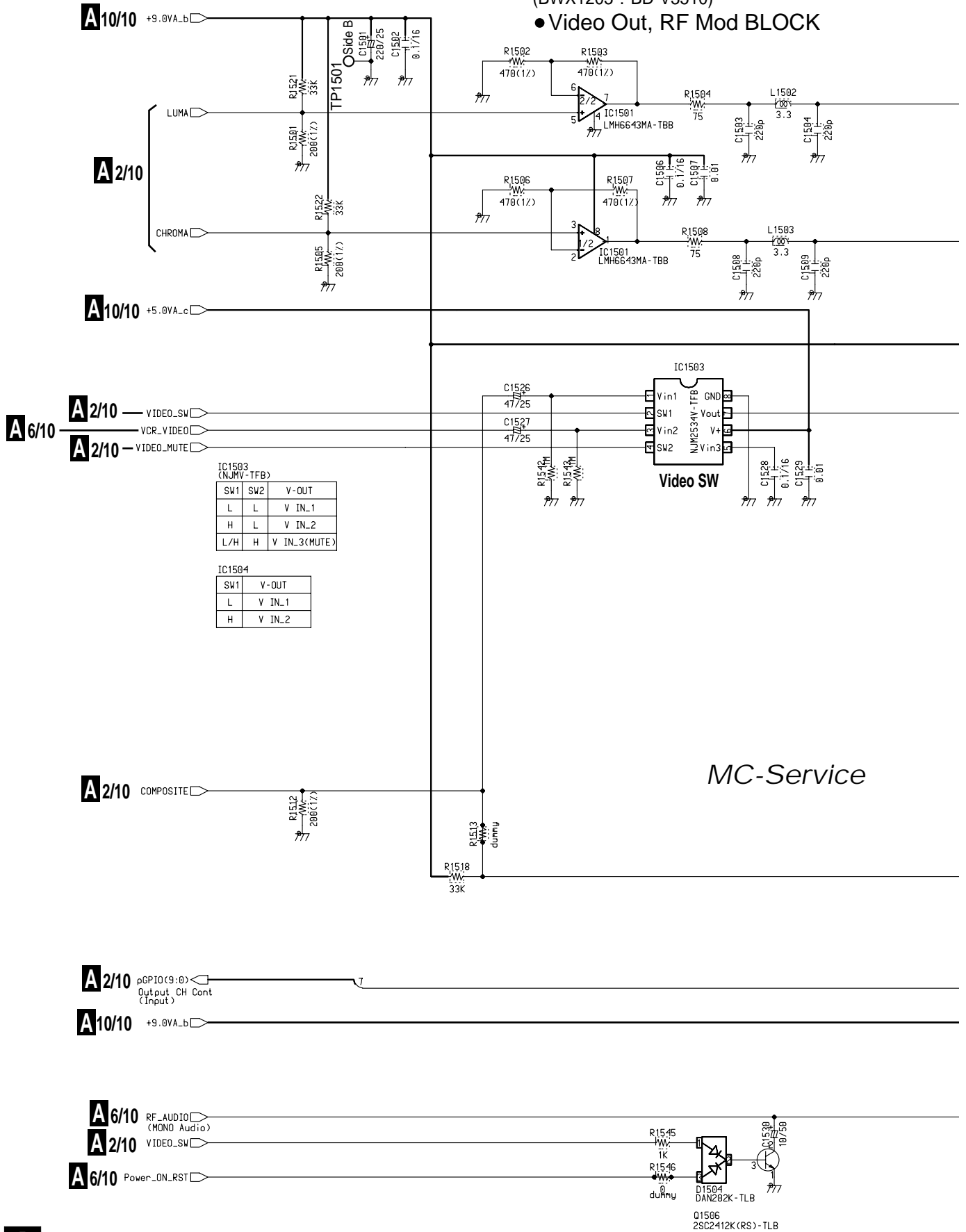
MC-Service

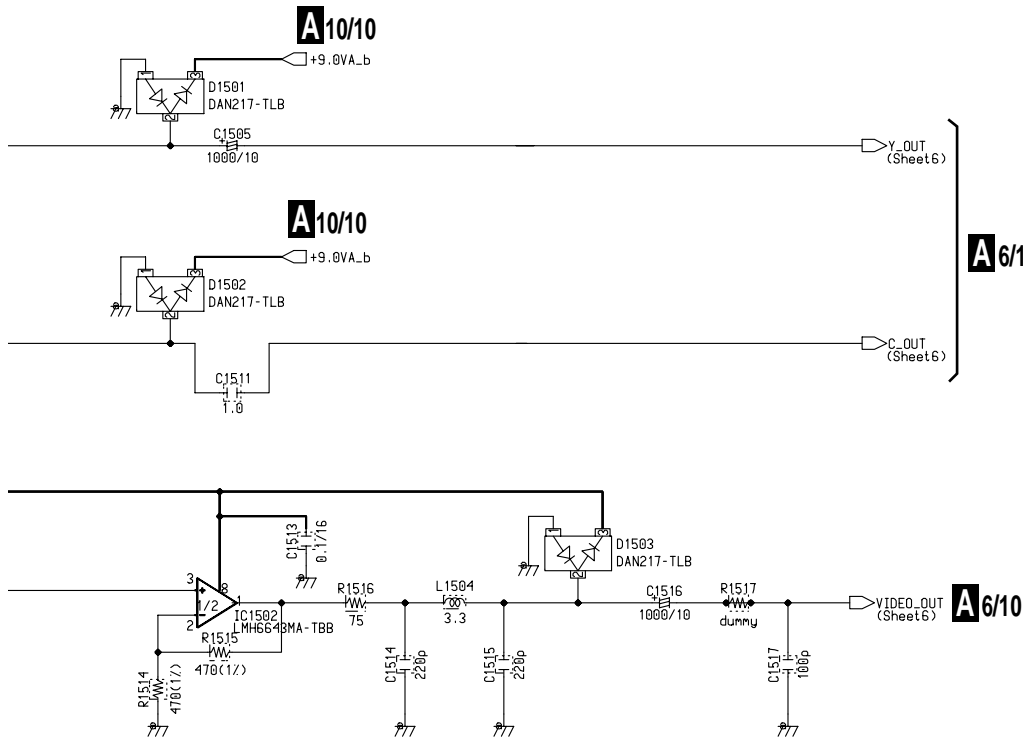
BD-V3501, BD-V3510 BD-V3511

3.7 MAIN ASSY(5/10)

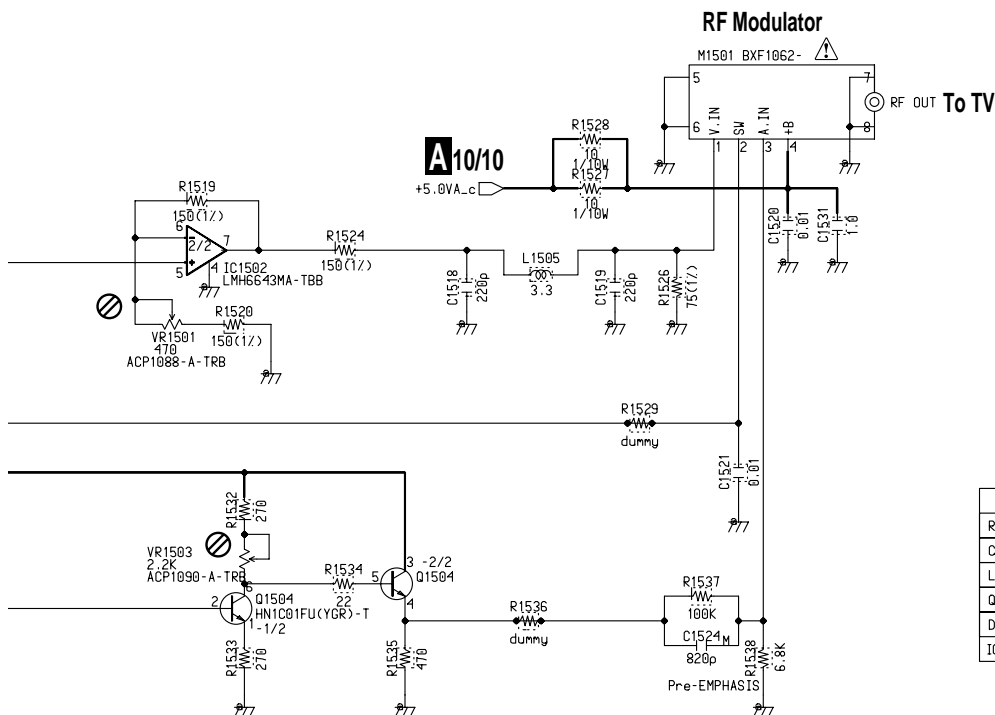
A5/10 MAIN ASSY (5/10) (BWV1202 : BD-V3501/BD-V3511) (BWV1203 : BD-V3510)

● Video Out, RF Mod BLOCK





The \triangle Mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, be sure to use parts of identical designation.

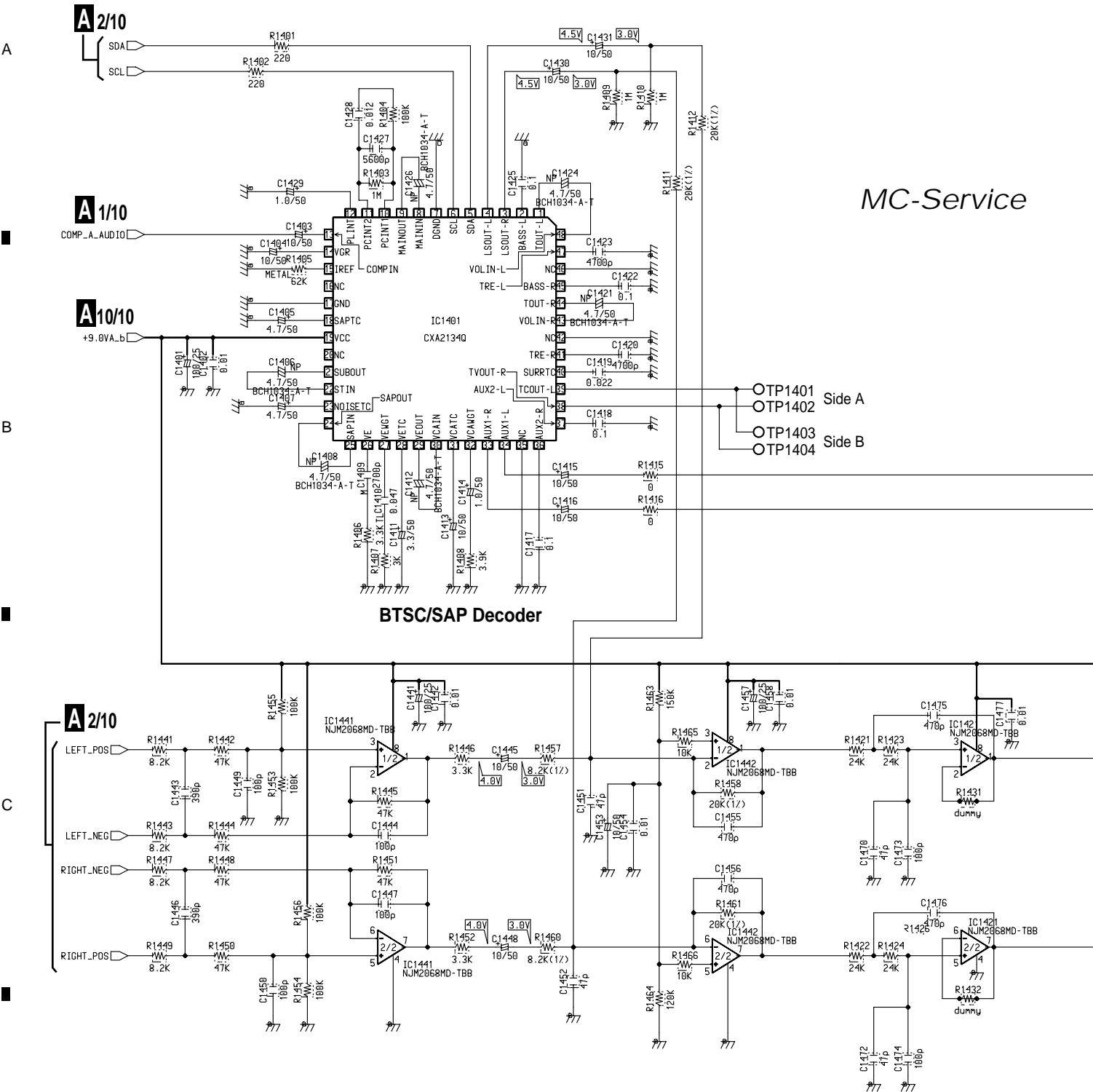


MC-Service

	USED	VACANT
R	1501-1546	1509-1511, 1523, 1531, 1539-1541, 1544
C	1501-1531	1512, 1523
L	1502-1505	
Q	1502-1506	1503, 1505
D	1501-1504	
IC	1501-1504	

BD-V3501, BD-V3510
BD-V3511

3.8 MAIN ASSY(6/10)



MC-Service

OTP1401 Side A
OTP1402 Side A
OTP1403 Side B
OTP1404 Side B

BTSC/SAP Decoder

	USED	VACANT
R	1401-1564	1427, 1429-1430, 1433-1440, 1480, 1487-1490, 1497-1549, 1557
C	1401-1497	1439-1440, 1463-1464, 1489-1490, 1496
L		
Q	1441-1491	1443-1444, 1447-1490
D	1441-1442	
IC	1401-1442	1402-1420, 1423-1440

BD-V3501, BD-V3510

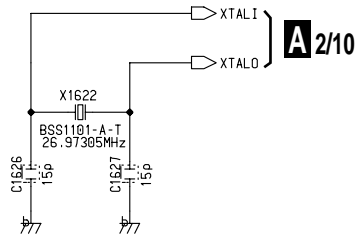
BD-V3511

3.9 MAIN ASSY(7/10)

A7/10 MAIN ASSY (7/10)
(BWV1202 : BD-V3501/BD-V3511)
(BWV1203 : BD-V3510)

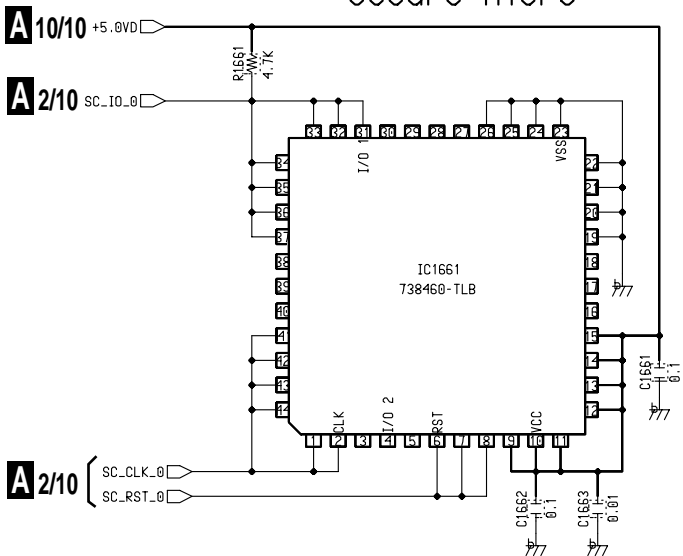
- 27M VCXO, Secure, Card, EEPROM, Reset, Serial I/O, IR Control BLOCK

26.97305MHz X'tal



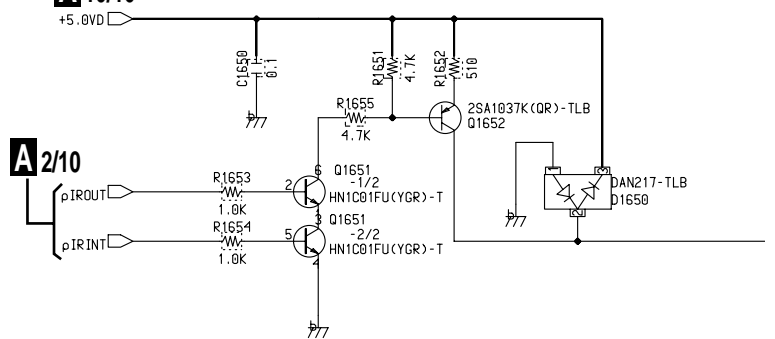
A2/10

Secure Micro



A10/10

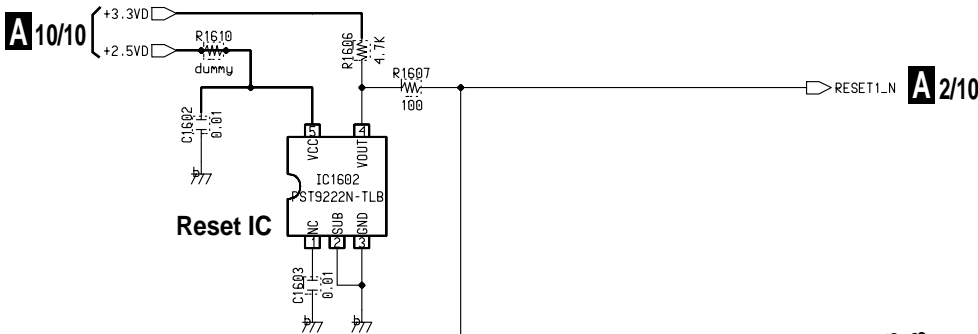
IR CONTROL



A2/10

IR CONTROL	pIRINT	pIROUT
ENABLE	H	DATA
DISABLE	L	—

RESET

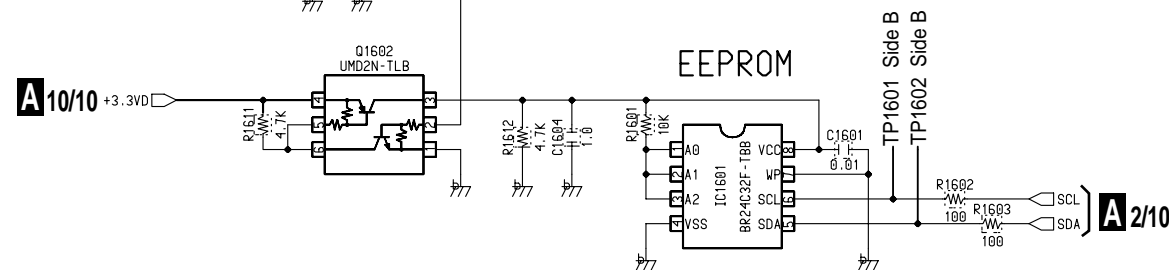


A10/10

A2/10

MC-Service

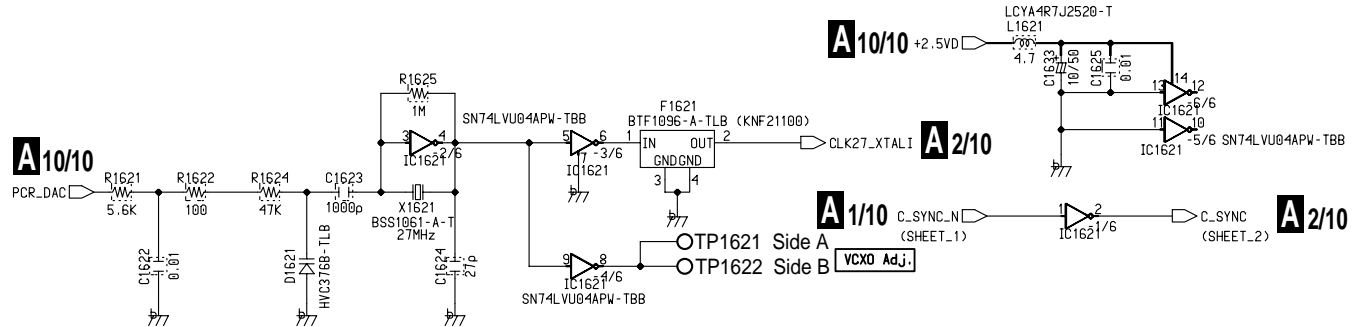
EEPROM



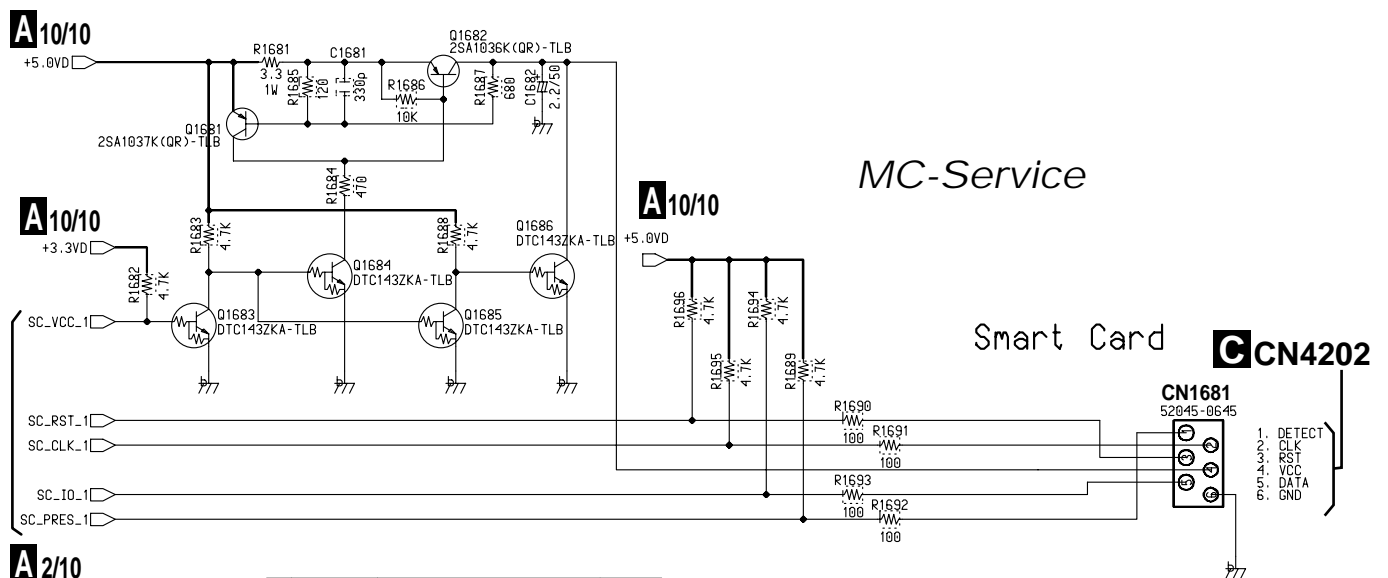
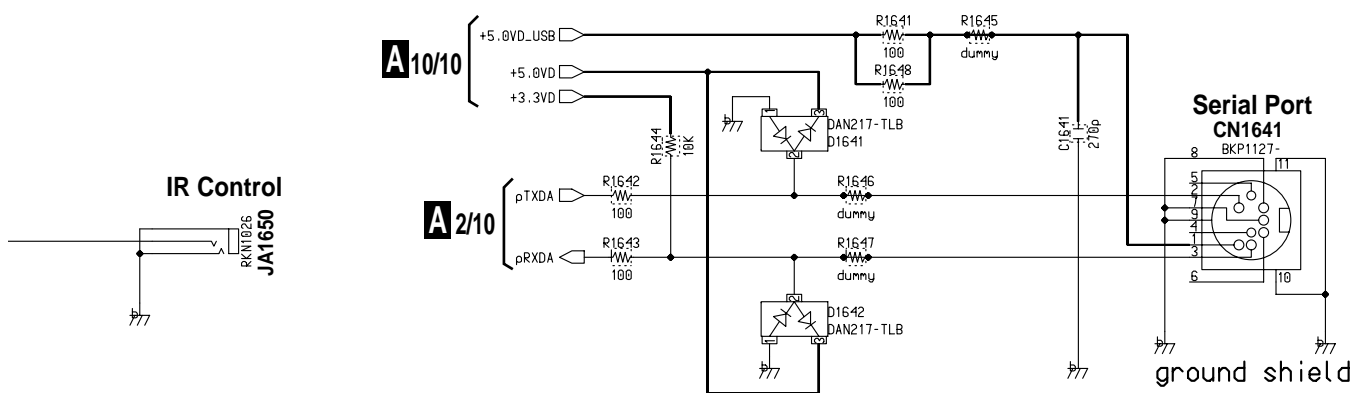
A10/10

A2/10


27MHz VCXO

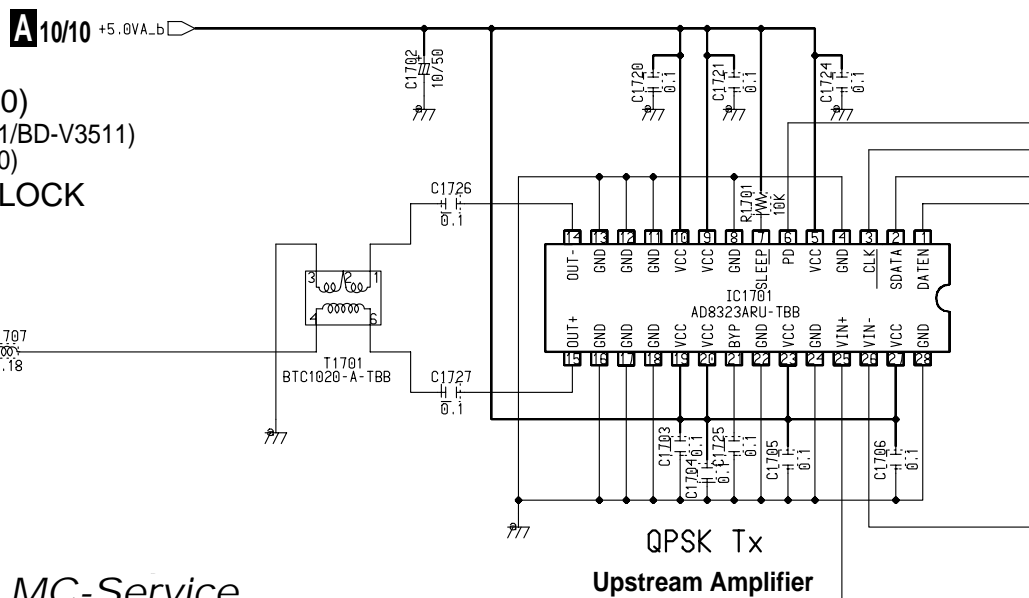


Serial I/O

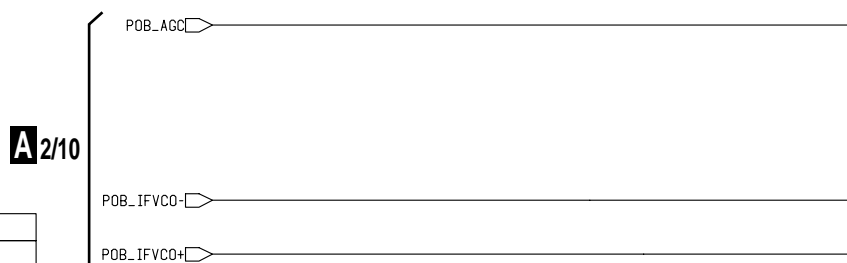
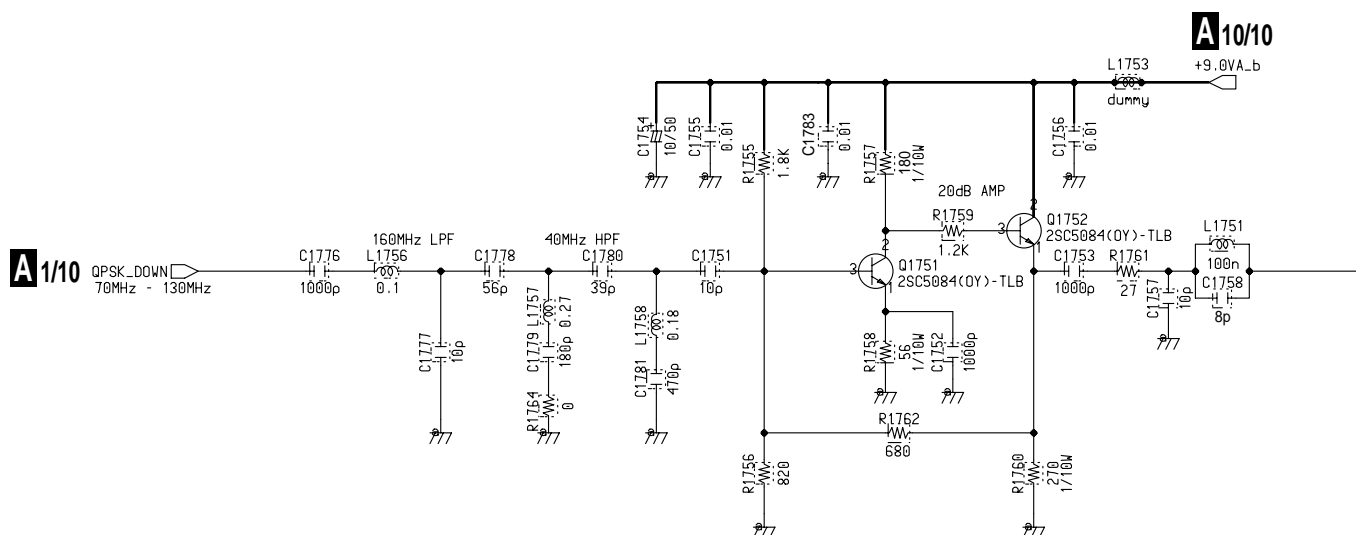


	USED	VACANT
R	1601-1697	1613-1620, 1632-1634, 1636-1640, 1645, 1656-1660, 1682-1688
C	1601-1689	1695-1620, 1636-1638, 1634-1640, 1645, 1649, 1651-1660, 1664-1680, 1683-1684
L	1621	
Q	1601-1686	1693-1650, 1653-1680
D	1621-1642	1622-1640, 1643-1649
IC	1601-1661	1693-1620, 1622-1660

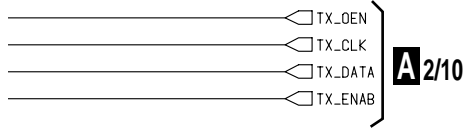
A 1/10
QPSK_UP 
8MHz - 26.5MHz



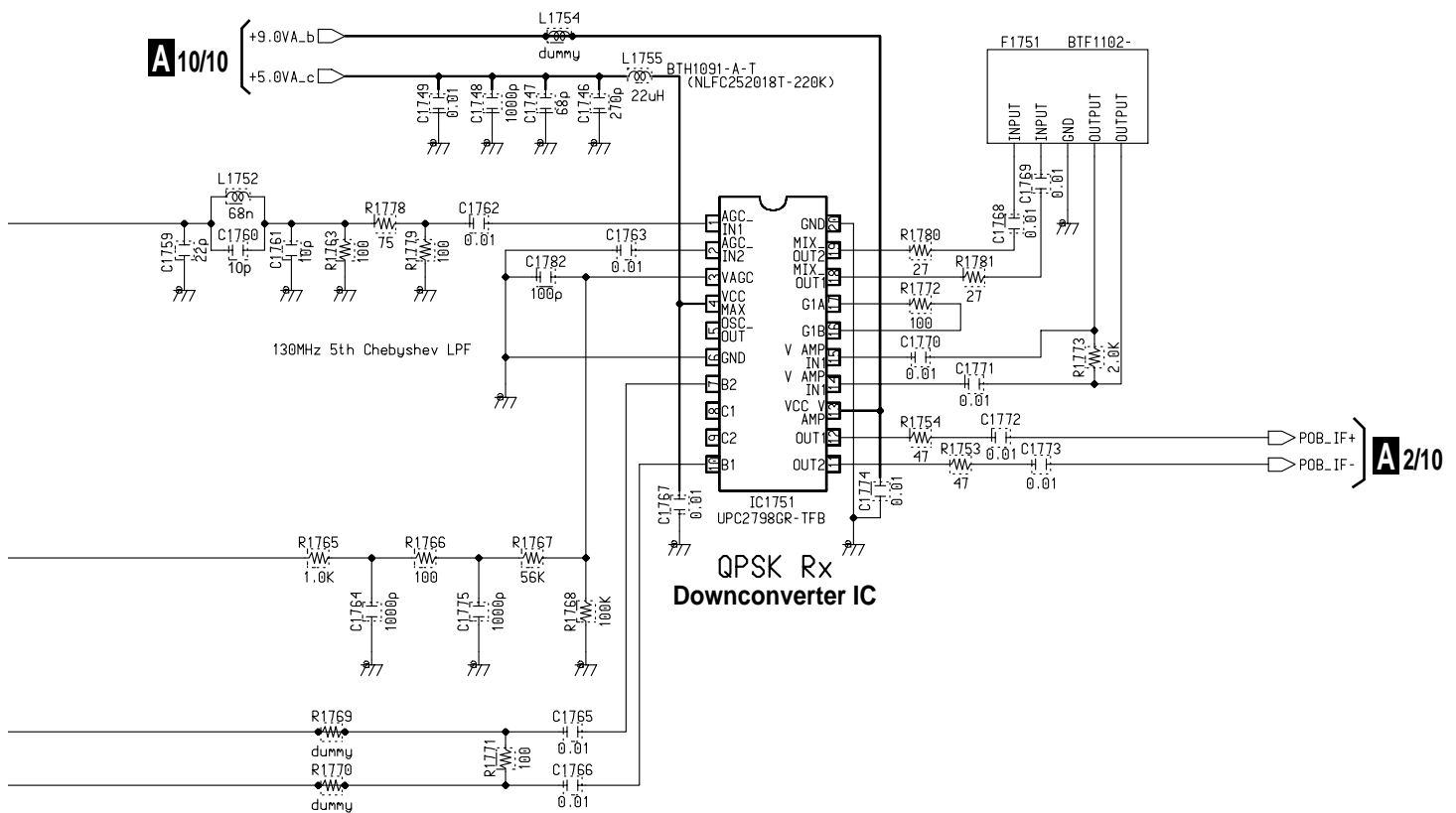
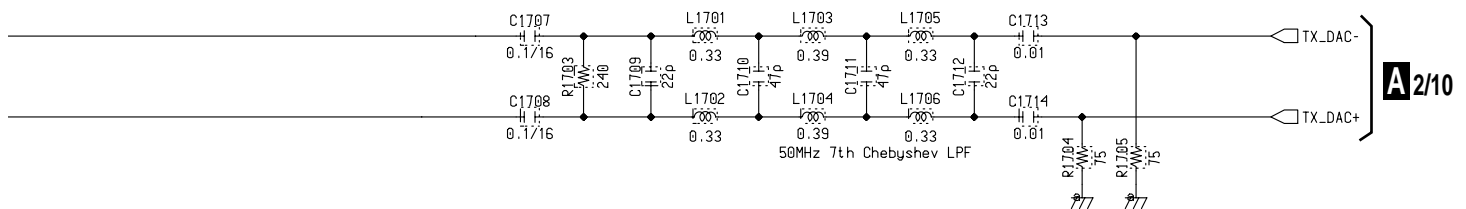
MC-Service



	USED	VACANT
R	1701-1781	1707-1751
C	1701-1782	1716, 1728-1745
L	1701-1758	1710-1750
Q	1751-1752	
D		
IC	1701-1751	1702-1750



MC-Service

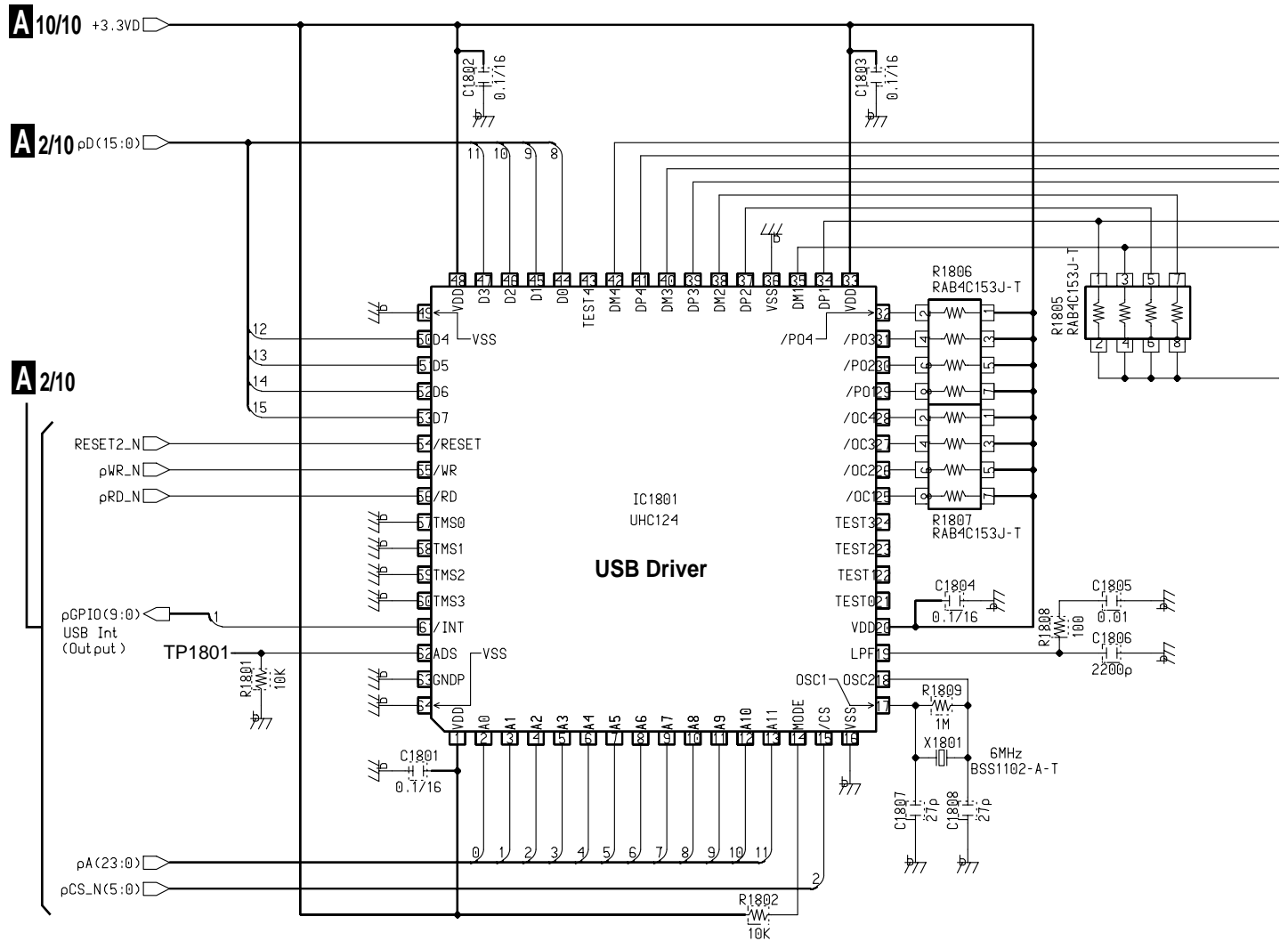


BD-V3501, BD-V3510 BD-V3511

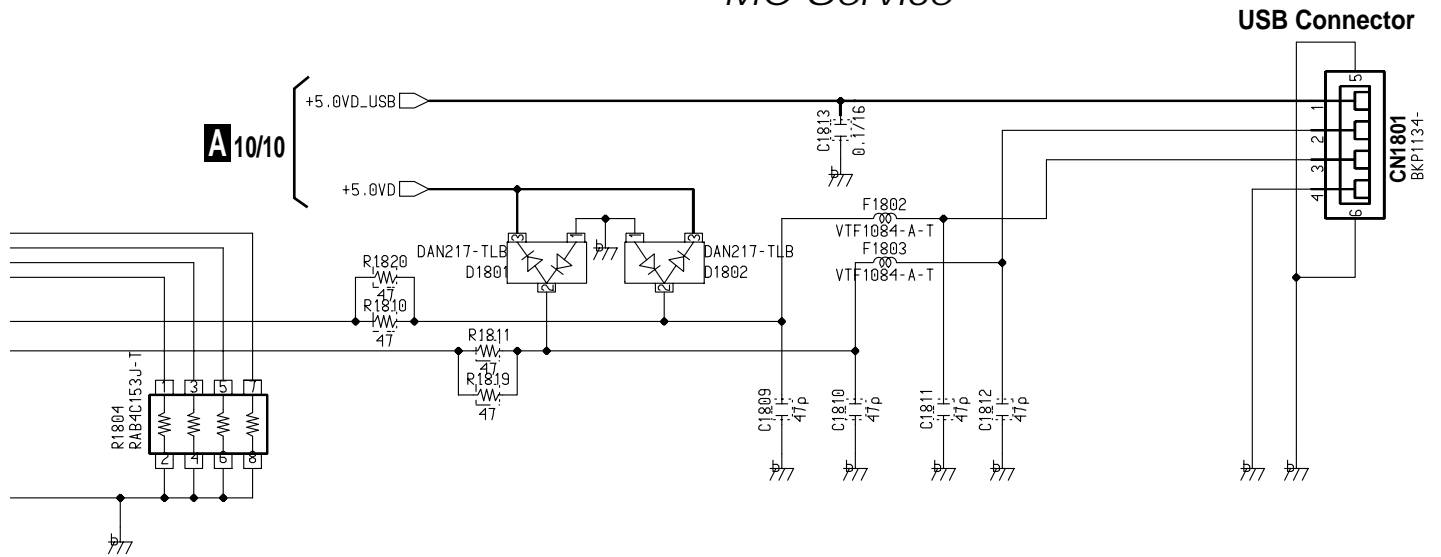
3.11 MAIN ASSY(9/10)

A 9/10 MAIN ASSY (9/10)
(BW1202 : BD-V3501/BD-V3511)
(BW1203 : BD-V3510)
• USB BLOCK

MC-Service

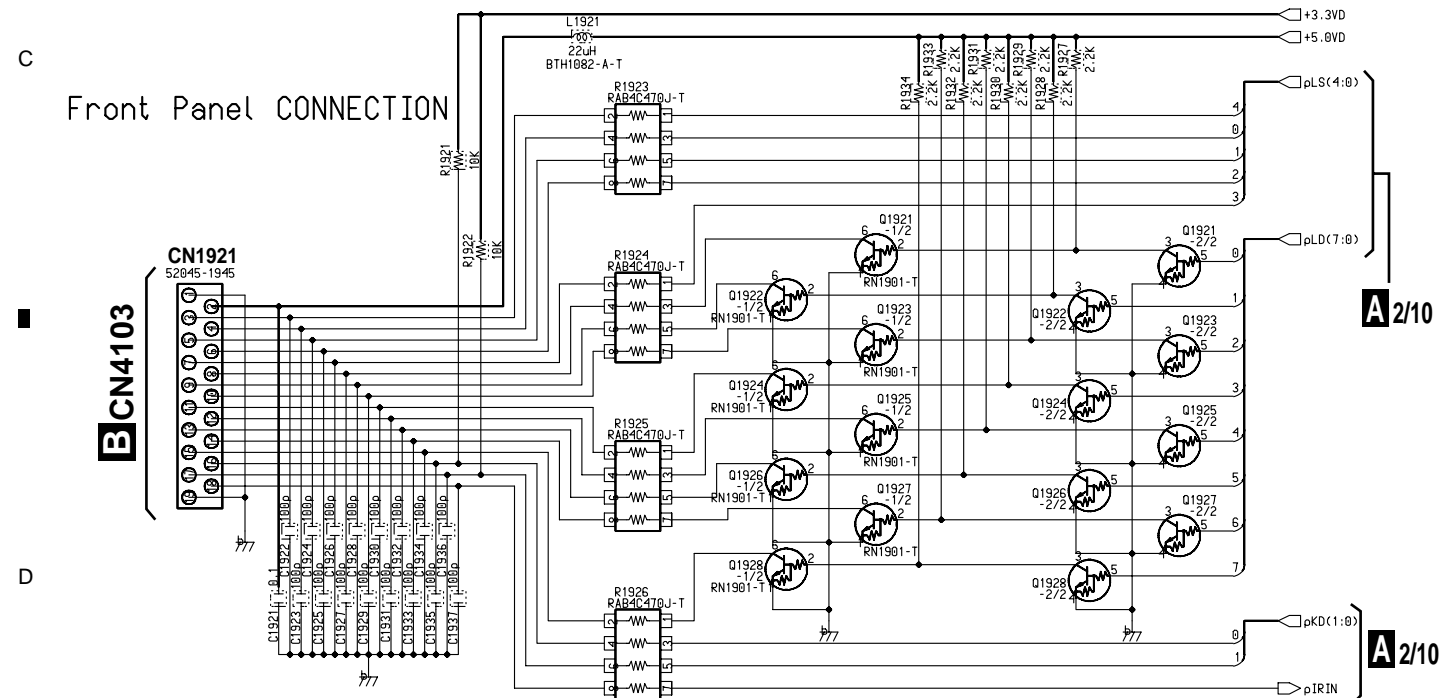
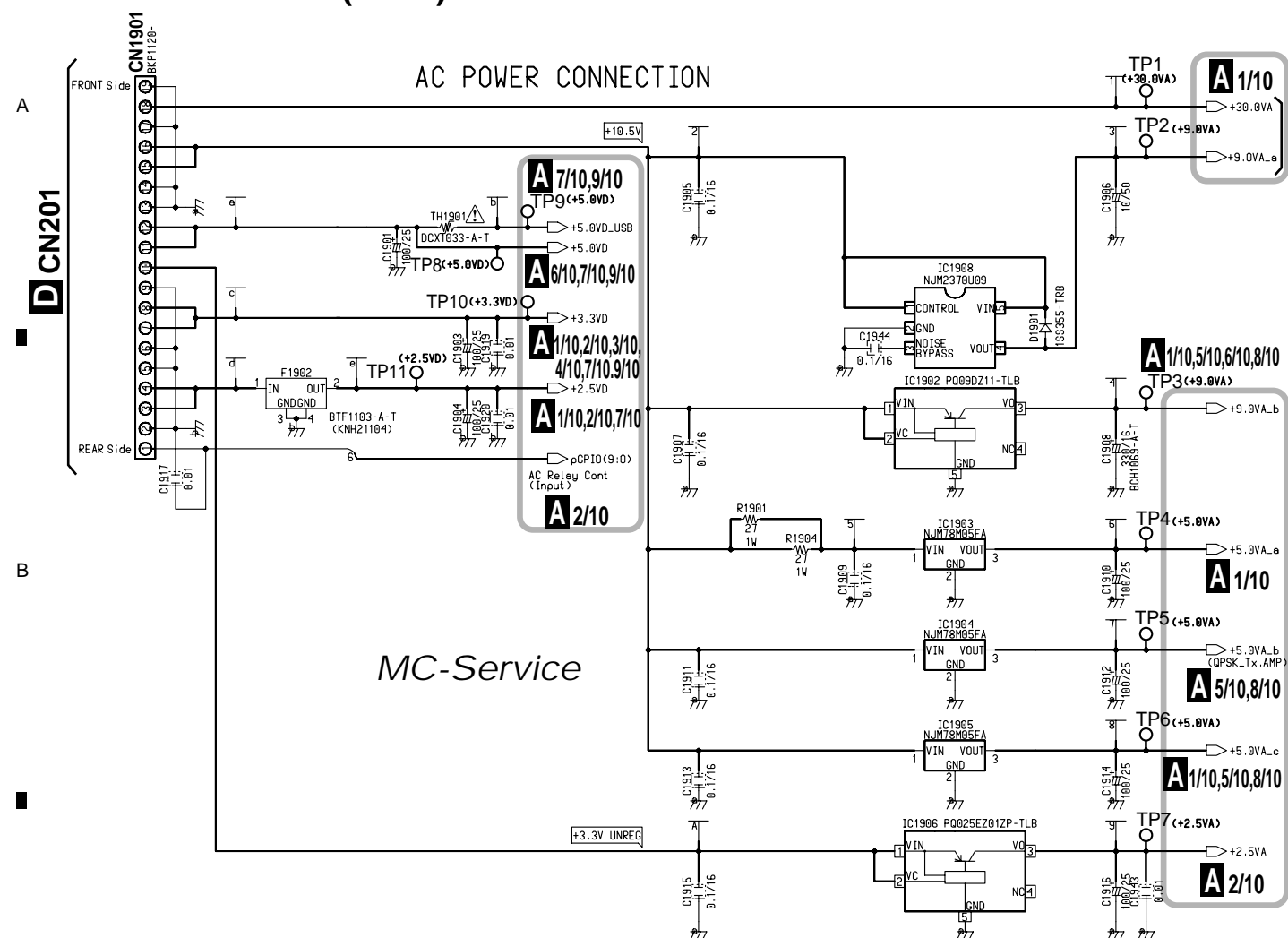


MC-Service




	USED	VACANT
R	1801-1820	1814-1818
C	1801-1813	
L		
Q		
D	1801-1802	
IC	1801	

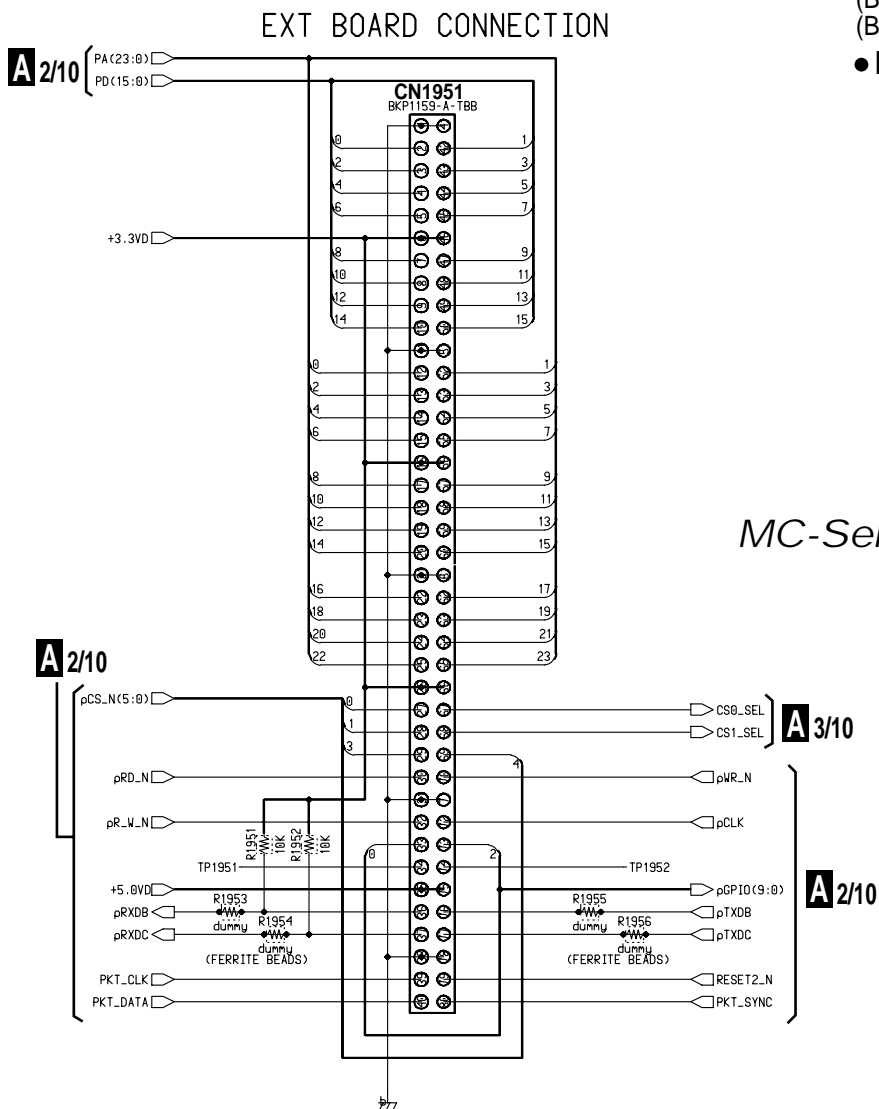
**BD-V3501, BD-V3510
BD-V3511
3.12 MAIN ASSY(10/10)**



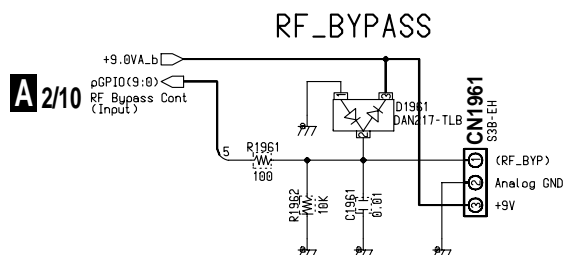
BD-V3501, BD-V3510 BD-V3511

 : The power supply is shown with the marked box.

A 10/10 MAIN ASSY (10/10)
(BW1202 : BD-V3501/BD-V3511)
(BW1203 : BD-V3510)
● Power, I/O BLOCK



MC-Service



The Δ Mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, be sure to use parts of identical designation.

	USED	VACANT
R	1901-1962	1907-1920, 1935-1950, 1960
C	1901-1961	1945-1960
L	1921-1922	
Q	1921-1928	
D	1901, 1961	1902-1960
IC	1902-1908	1907

3.13 FRONT PANEL AND CARD ASSYS

A

B

C

D

A 10/10 CN1921

B FRONT PANEL ASSY(BWZ1913)

CN4103
9607S-19F

GND
+5V
pLS4
pLS0
pLS1
pLS2
pLS3
pLD0
pLD1
pLD2
pLD3
pLD4
pLD5
pLD6
pLD7
pKD0
pKD1
TRIN
GND

+5V
a

b77

KeyDig0th

KeyDig0ne

KeyDigTen

KeyDigHun

KeyDigThou

seg_a

seg_b

seg_c

seg_d

seg_e

seg_f

seg_g

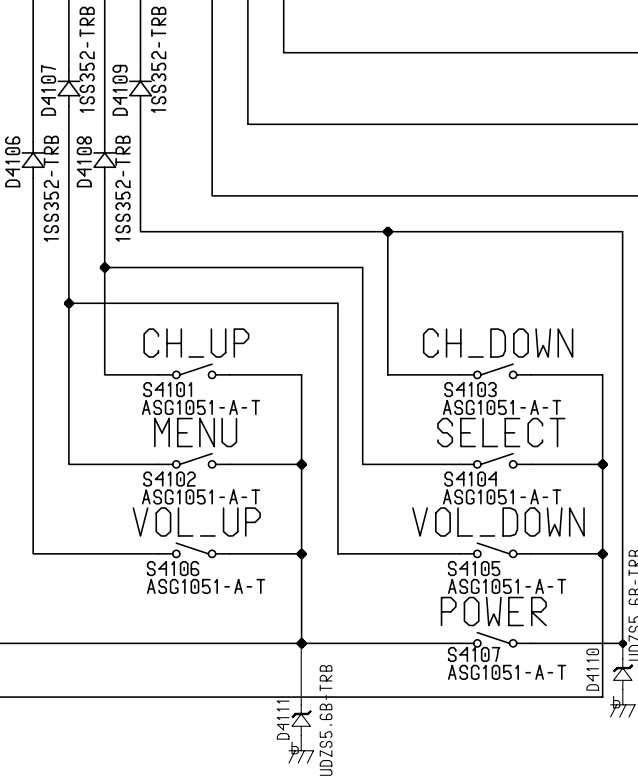
seg_dp

R4102
47K
1/16W
R4101
220
1/16W

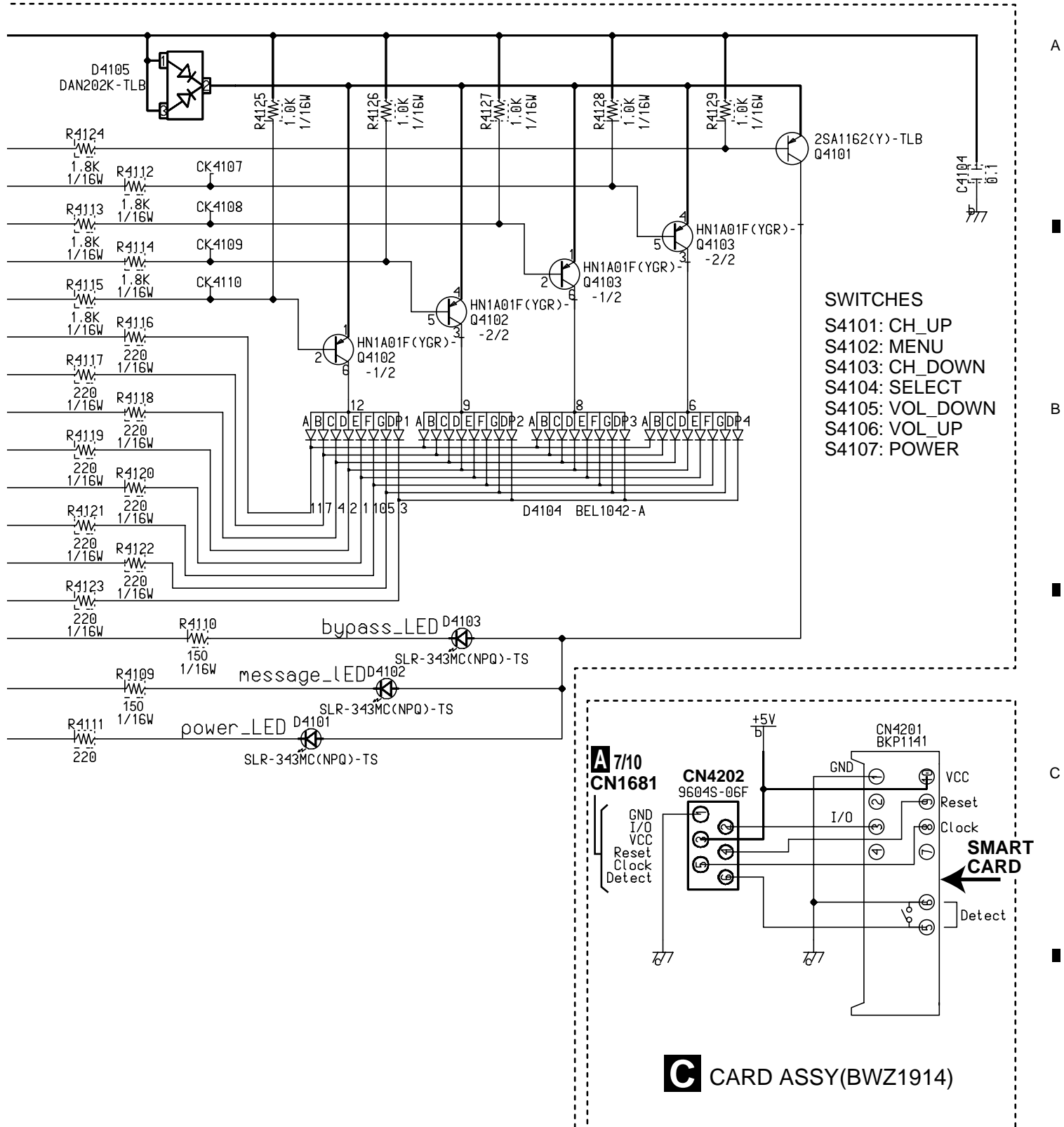
M4101
GP1UM267XK
VOUT
VOC
GND

C4102
0.1
C4101
0.01

b77



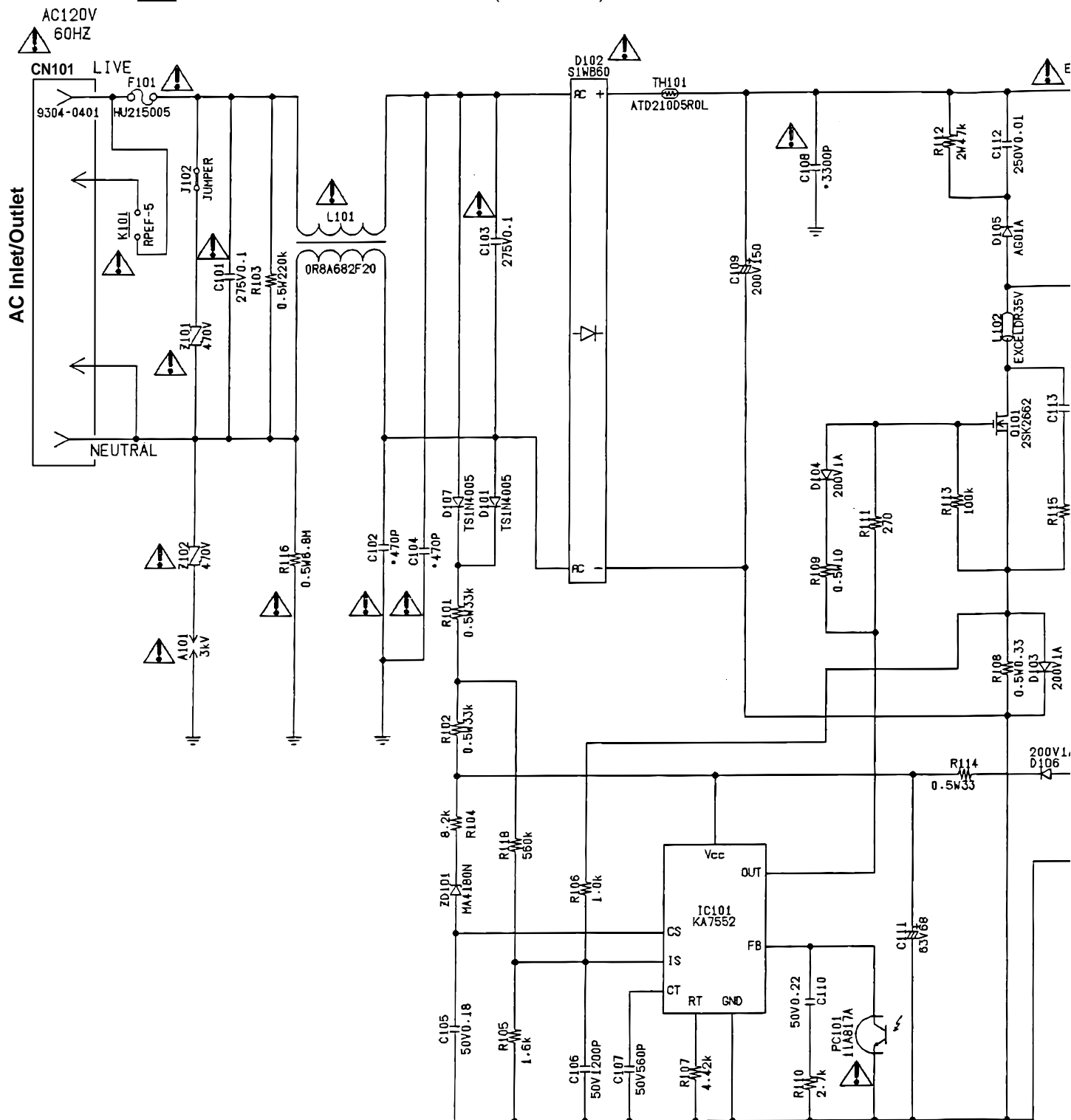
	USED	VACANT
R	4101-4130	4103-4108
C	4101-4121	
L		
Q	4101-4103	
D	4101-4109	
IC		



3.14 POWER SUPPLY MODULE

D POWER SUPPLY MODULE (BXF1147)

MC-Service

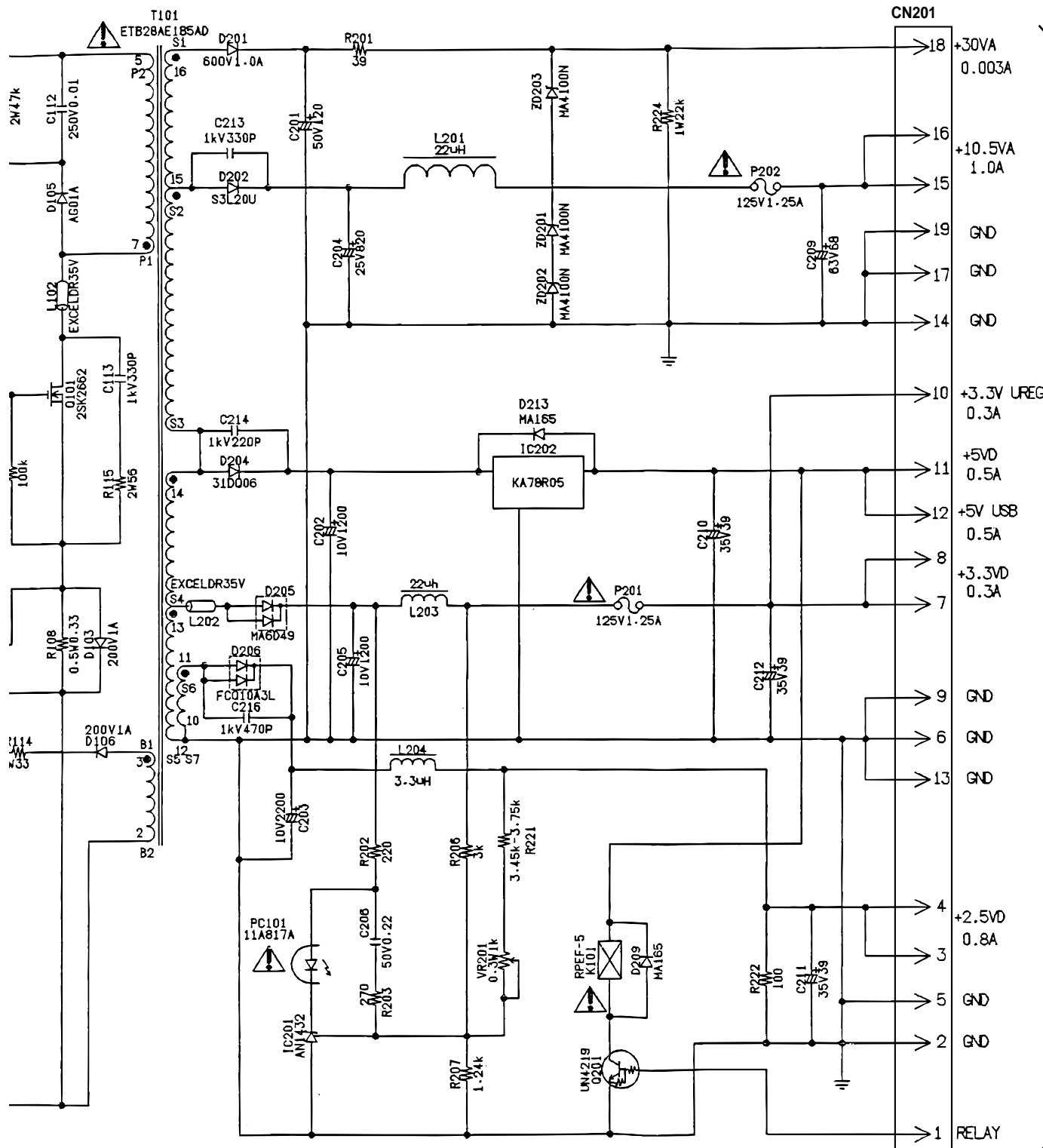


**BD-V3501, BD-V3510
BD-V3511**

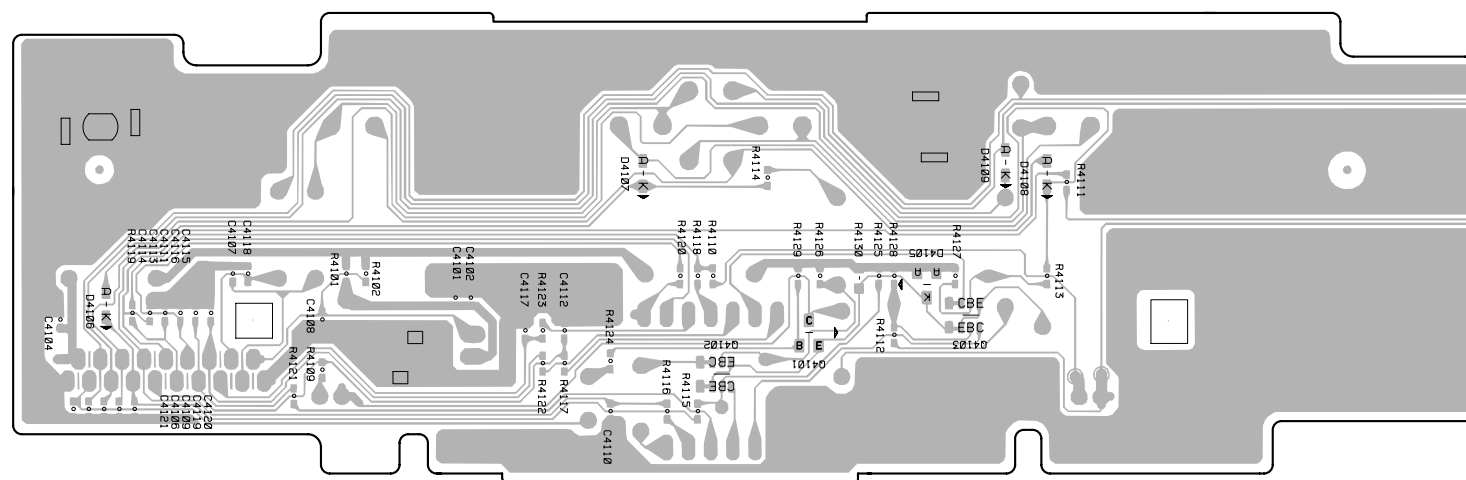
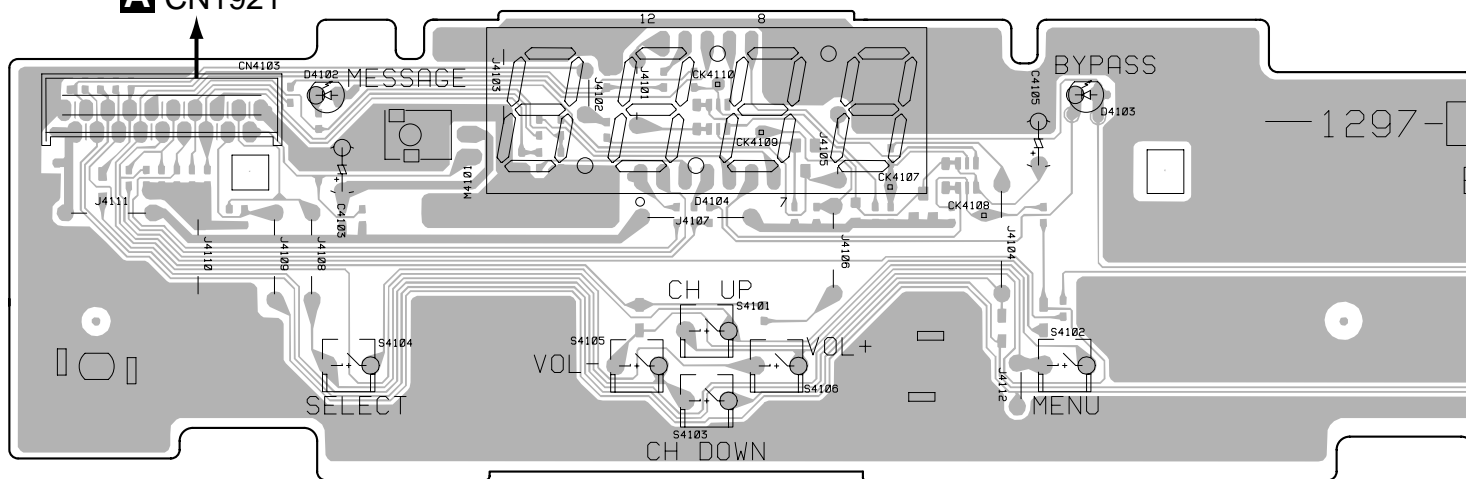
Note : No individual parts replacement for repair is accepted by Model Supplier due to the safety reasons.
Replace whole module.

MC-Service

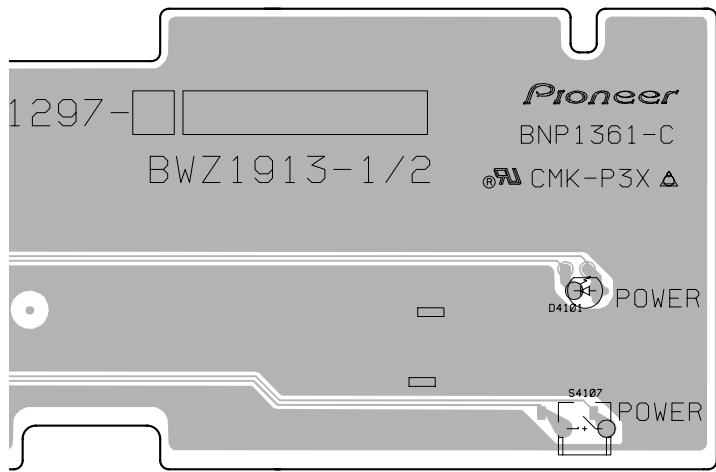
TWG-P19X-A1
CN201



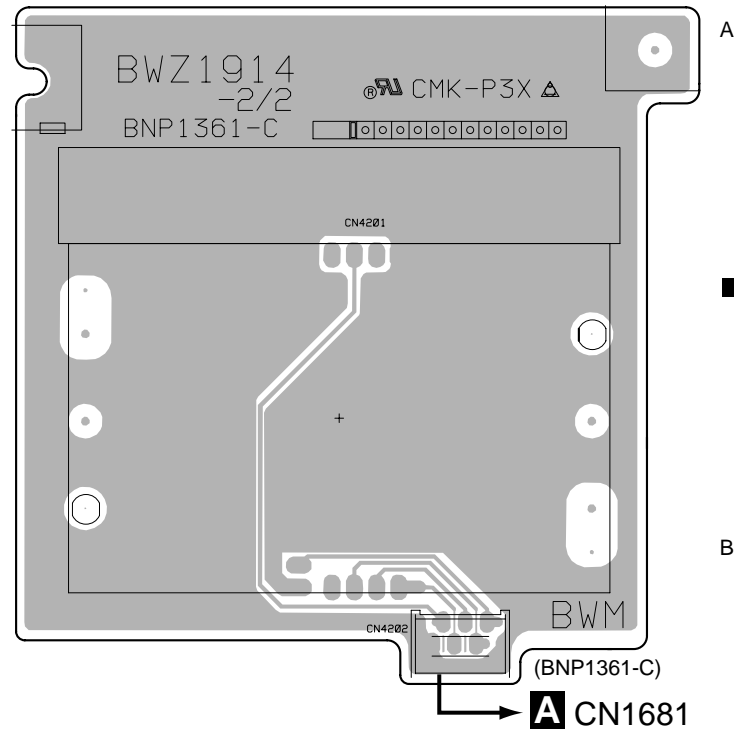
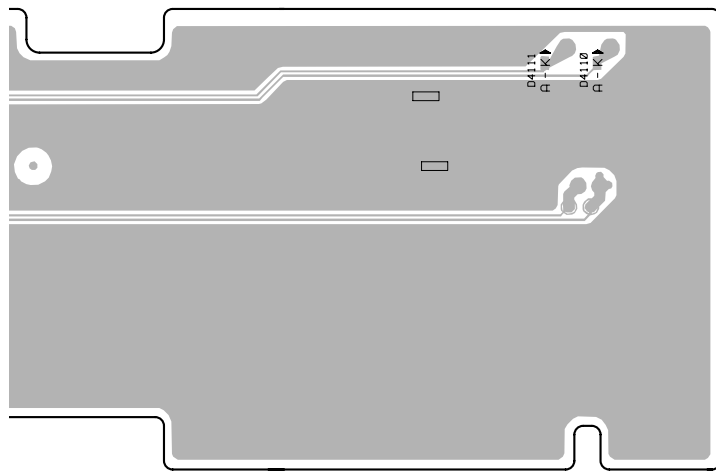
A CN1921



Q4102 Q4101 Q4103

C CARD ASSY


(BNP1361-C)

SIDE A

A CN1681


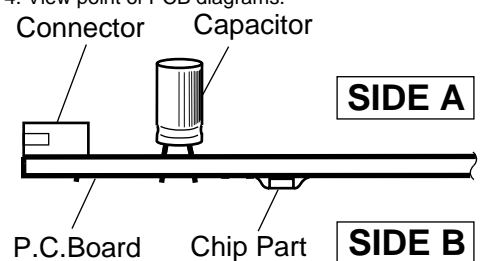
(BNP1361-C)

SIDE B
MC-Service
NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



A

B

C

D

36

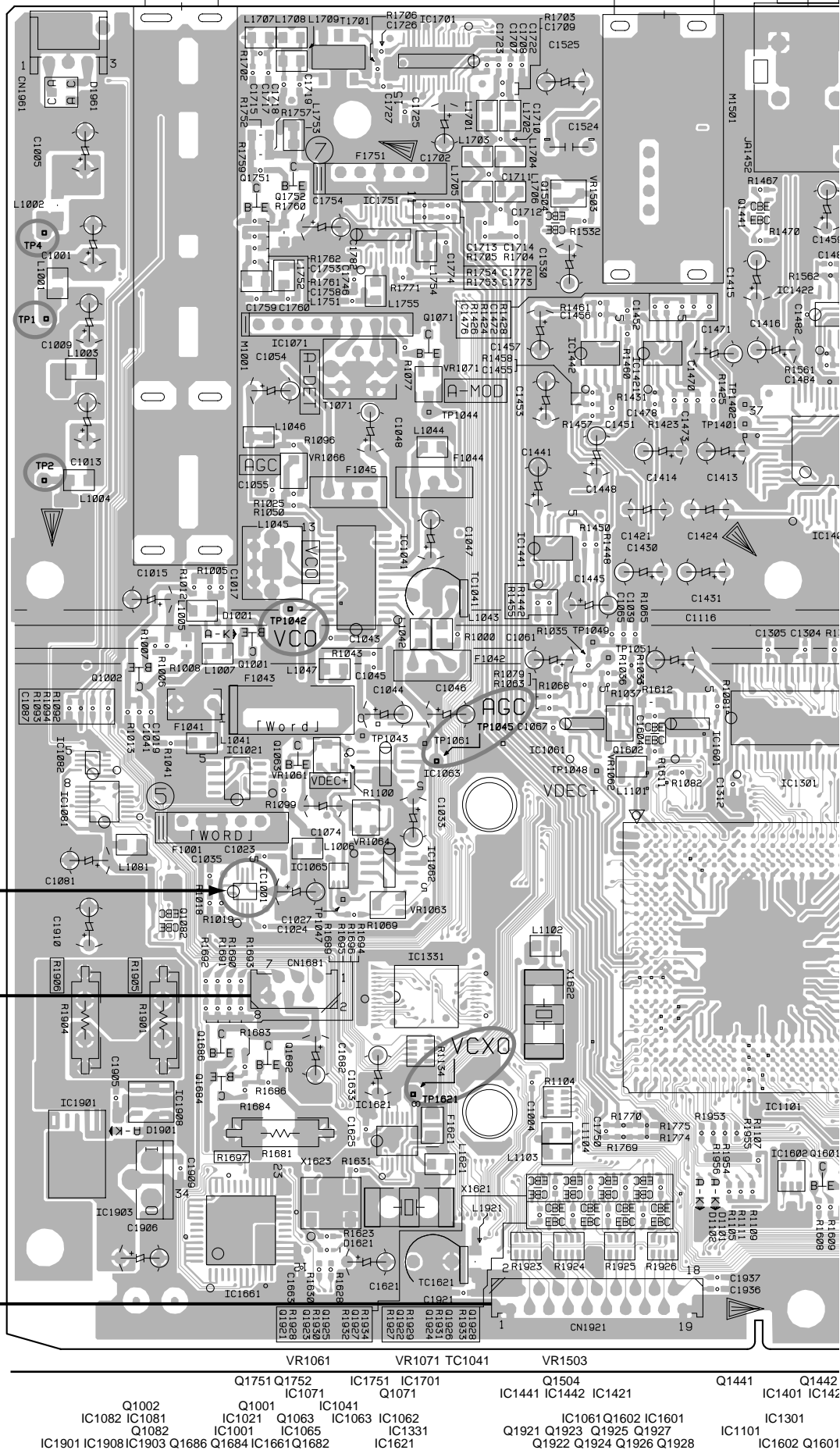
A

IC19

2

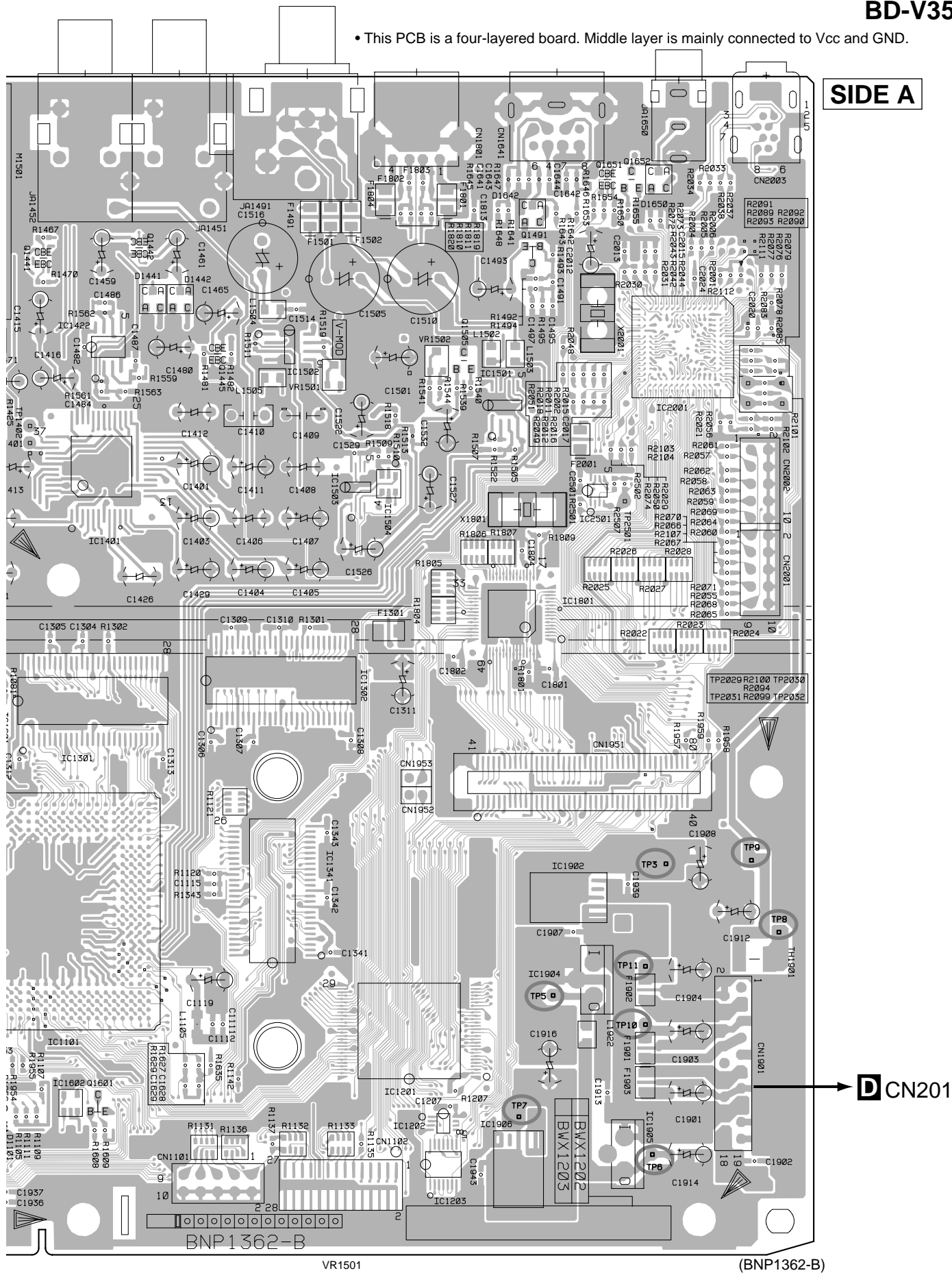
3

4



- This PCB is a four-layered board. Middle layer is mainly connected to Vcc and GND.

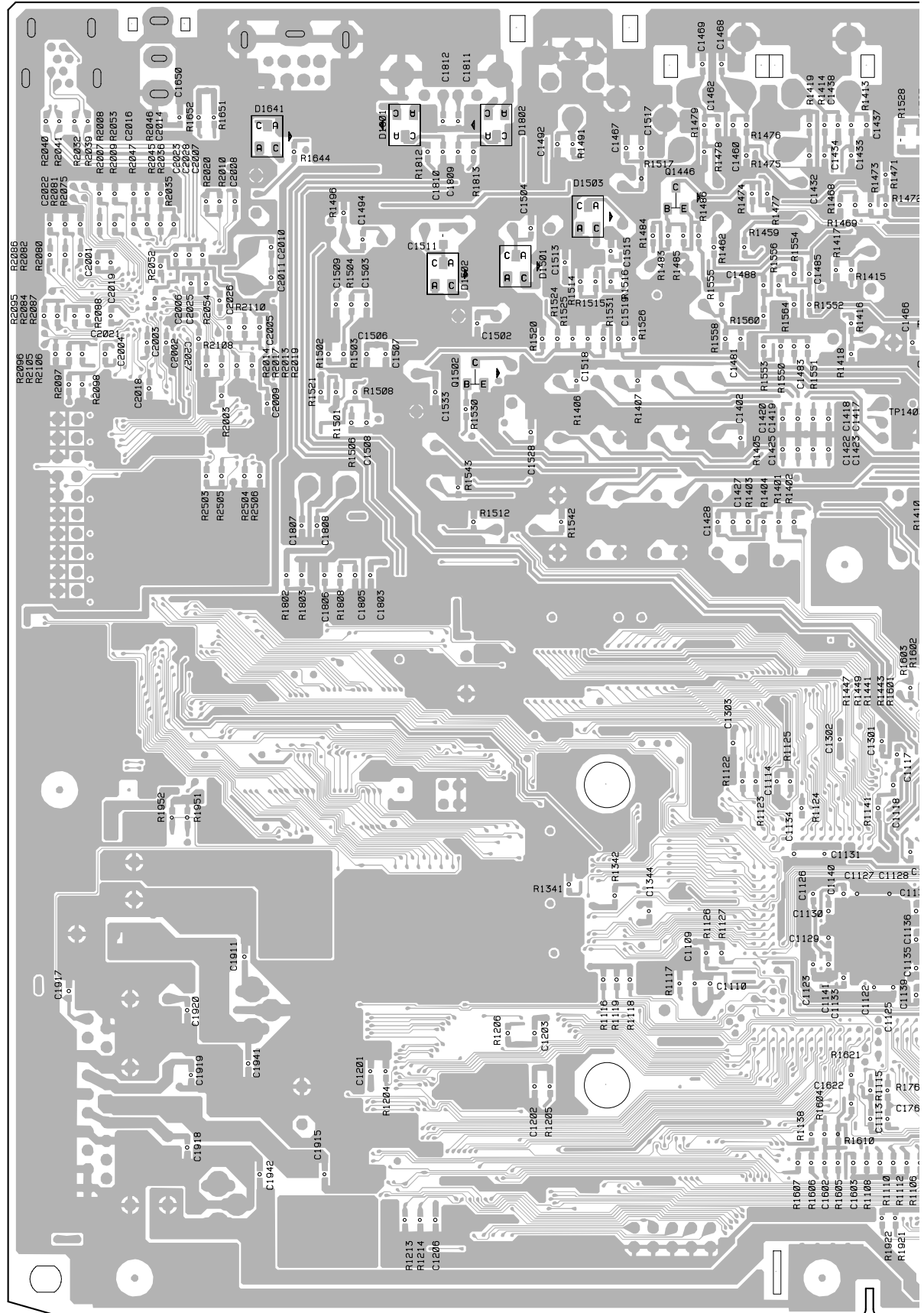
SIDE A



D CN201

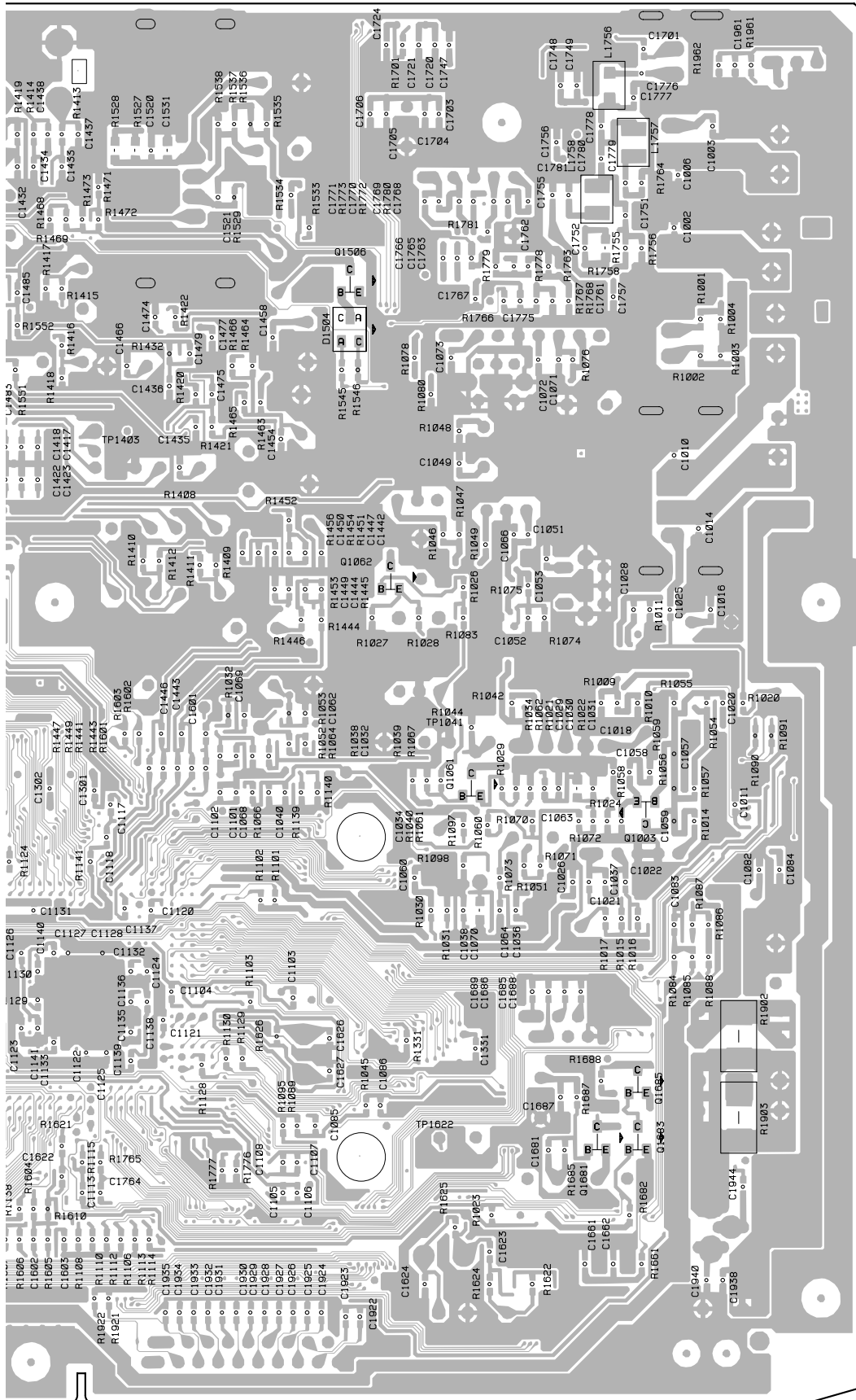
[illegible]

A MAIN ASSY



Q1502

Q1446



SIDE B

(BNP1362-B)

Q1506

Q1062

Q1061

Q1003

Q1681 Q1685 Q1683

5. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
●The Δ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.
●When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
560 Ω → 56 × 10¹ → 561 RD1/4PU 5 6 1 J
47k Ω → 47 × 10³ → 473 RD1/4PU 4 7 3 J
0.5 Ω → R50 RN2H R 5 0 K
1 Ω → 1R0 RS1P 1 R 0 K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 × 10¹ → 5621 RN1/4PC 5 6 2 1 F

■ LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	Part No.			Remarks
		BD-V3501/KUXJ	BD-V3510/KUCXJ	BD-V3511/KUCXJ	
Δ	MAIN ASSY	BWX1202	BWX1203	BWX1202	
	COMBINED ASSY	BWM1297	BWM1297	BWM1297	
	└FRONT PANEL ASSY	BWZ1913	BWZ1913	BWZ1913	
	└CARD ASSY	BWZ1914	BWZ1914	BWZ1914	
	POWER SUPPLY MODULE	BXF1147	BXF1147	BXF1147	

A MAIN ASSY

BWX1202 and BWX1203 are constructed the same except for the following:

Mark	Symbol and Description	Part No.		Remarks
		BWX1202	BWX1203	
	IC1201 (FLASH ROM)	E28F320J3A-110	E28F640J3A-120	(BWX1202 : 4MB, BWX1203 : 8MB)
	IC1202	TC7WH02FU	Not used	
	IC1203	Not used	TC74LCX02FT	

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
A	MAIN ASSY(BWX1202)				IC1202	TC7WH02FU	
	SEMICONDUCTORS				IC1801	UHC124	
	IC1661	738460			IC1001	UPC1663GV	
	IC1701	AD8323ARU			IC1751	UPC2798GR	
	IC1101	BCM7100KPB			Q1682	2SA1036K	
	IC1601	BR24C32F			Q1063,Q1071,Q1446,Q1652,Q1681	2SA1037K	
	IC1401	CXA2134Q			Q1061,Q1062,Q1491,Q1506	2SC2412K	
	IC1201	E28F320J3A-110			Q1001,Q1002,Q1751,Q1752	2SC5084	
	IC1341	HY57V161610DTC-8			Q1683-Q1686	DTC143ZKA	
	IC1301,IC1302	HY57V641620HGT-H			Q1082,Q1441,Q1442,Q1445,Q1504	HN1C01FU	
	IC1071	LA1150N			Q1651	HN1C01FU	
	IC1501,IC1502	LMH6643MA			Q1921-Q1928	RN1901	
	IC1421,IC1422,IC1441,IC1442	NJM2068MD			Q1602	UMD2N	
	IC1908	NJM2370U09			D1901	1SS355	
	IC1503	NJM2534V			D1504	DAN202K	
	IC1903-IC1905	NJM78M05FA			D1441,D1442,D1501-D1503	DAN217	
	IC1906	PQ025EZ01ZP			D1641,D1642,D1650,D1801,D1802	DAN217	
	IC1902	PQ09DZ11			D1961	DAN217	
	IC1602	PST9222N			D1001	HSU277	
	IC1621	SN74LVU04APW			D1621	HVC376B	
	IC1331	T14L256A-12P		Δ	TH1901 (Thermistor)	MINISMDC100	
	IC1041	TA1274F		COILS AND FILTERS			
	IC1082	TC7W66FU			T1701	BTC1020	
					L1045	BTC1022	

Mark	No.	Description	Part No.
	T1071		BTE1029
	F1041		BTF1078
	F1001		BTF1079
	F1621		BTF1096
	F1043		BTF1098
	F1045		BTF1100
	F1044		BTF1101
	F1751		BTF1102
	F1301,F1902		BTF1103
	F1491		BTF1104
	F1042		BTF1106
	L1002,L1921		BTH1082
	L1003,L1004,L1101-L1104		BTH1089
	L1755		BTH1091
	L1044		LCTA120J2520
	L1042,L1043		LCTA150J2520
	L1005,L1006		LCTA220J2520
	L1502-L1505		LCTA3R3J2520
	L1001,L1081,L1621		LCTA4R7J2520
	L1007		LCYA1R0J252
	L1752		LCYA68NJ2520
	L1751,L1756		LCYAR10J2520
	L1041,L1707,L1758		LCYAR18J2520
	L1757		LCYAR27J2520
	L1701,L1702,L1705,L1706		LCYAR33J2520
	L1703,L1704		LCYAR39J2520
	F1802,F1803		VTF1084

CAPACITORS

TC1041 (9.8pF-60pF)	ACM-020
C1406,C1408,C1412,C1421,C1424	BCH1034
C1426 (4.7μF/50V)	BCH1034
C1908 (330μF/16V)	BCH1069
C1758	CCSRCH8R0D50
C1115,C1487,C1488,C1751,C1757	CCSRCH100D50
C1760,C1761,C1777	CCSRCH100D50
C1444,C1447,C1449,C1450	CCSRCH101J50
C1473,C1474,C1495,C1517,C1782	CCSRCH101J50
C1922-C1937	CCSRCH101J50
C1626,C1627	CCSRCH150J50
C1779	CCSRCH181J50
C1709,C1712,C1759	CCSRCH220J50
C1503,C1504,C1508,C1509	CCSRCH221J50
C1514,C1515,C1518,C1519	CCSRCH221J50
C1113,C1624,C1807,C1808	CCSRCH270J50
C1641,C1746	CCSRCH271J50
C1681	CCSRCH331J50
C1780	CCSRCH390J50
C1443,C1446	CCSRCH391J50
C1073,C1451,C1452,C1470,C1472	CCSRCH470J50
C1710,C1711,C1809-C1812	CCSRCH470J50
C1455,C1456,C1475,C1476,C1483	CCSRCH471J50
C1485,C1781	CCSRCH471J50
C1778	CCSRCH560J50
C1747	CCSRCH680J50
C1053	CCSRCK2R0C50
C1001,C1009,C1015,C1027,C1033	CEAK100M50
C1044,C1047,C1081,C1403,C1404	CEAK100M50
C1413,C1415,C1416,1430,C1431	CEAK100M50
C1445,C1448,C1453,C1530,C1633	CEAK100M50
C1702,C1754,C1906	CEAK100M50
C1401,C1441,C1457,C1459,C1461	CEAK101M25

Mark	No.	Description	Part No.
	C1493,C1901,C1903,C1904,C1910		CEAK101M25
	C1912,C1914,C1916		CEAK101M25
	C1505,C1516		CEAK102M10
	C1414,C1429		CEAK1R0M50
	C1116,C1501		CEAK221M25
	C1046,C1465,C1682		CEAK2R2M50
	C1411		CEAK3R3M50
	C1054,C1061,C1119,C1526,C1527		CEAK470M25
	C1005,C1013,C1311		CEAK471M16
	C1405,C1407		CEAK4R7M50
	C1048		CEAKR47M50
	C1074		CEHANP220M16
	C1410		CFTLA473J50
	C1511,C1531,C1604		CKSQYF105Z16
	C1018,C1020,C1041,C1043,C1049		CKSRYB102K50
	C1083,C1433,C1434,C1623,C1748		CKSRYB102K50
	C1752,C1753,C1764,C1775,C1776		CKSRYB102K50
	C1002-C1004,C1006,C1010,C1014		CKSRYB103K50
	C1016,C1017,C1021-C1025,C1028		CKSRYB103K50
	C1045,C1052,C1055,C1062,C1066		CKSRYB103K50
	C1071,C1072,C1082,C1102,C1104		CKSRYB103K50
	C1106,C1108,C1110-C1112,C1118		CKSRYB103K50
	C1120-C1141,C1201-C1203,C1207		CKSRYB103K50
	C1301-C1310,C1312,C1313,C1331		CKSRYB103K50
	C1341-C1344,C1402,C1442,C1454		CKSRYB103K50
	C1458,C1477,C1482,C1491,C1507		CKSRYB103K50
	C1520,C1521,C1529,C1601-C1603		CKSRYB103K50
	C1622,C1625,C1663,C1713,C1714		CKSRYB103K50
	C1749,C1755,C1756,C1762,C1763		CKSRYB103K50
	C1765-C1774,C1783,C1805,C1917		CKSRYB103K50
	C1919,C1920,C1943,C1961		CKSRYB103K50
	C1032,C1034,C1036,C1060		CKSRYB104K16
	C1064,C1065,C1069,C1084-C1086		CKSRYB104K16
	C1417,C1418,C1422,C1425,C1494		CKSRYB104K16
	C1650,C1661,C1662,C1703-C1706		CKSRYB104K16
	C1720,C1721,C1724-C1727,C1921		CKSRYB104K16
	C1428		CKSRYB123K50
	C1806		CKSRYB222K50
	C1420,C1423		CKSRYB472K50
	C1427		CKSRYB562K50
	C1460,C1462		CKSRYB821K50
	C1019,C1026,C1101,C1103,C1105		CKSRYF104Z16
	C1107,C1109,C1117,C1502,C1506		CKSRYF104Z16
	C1513,C1528,C1701,C1707,C1708		CKSRYF104Z16
	C1801-C1804,C1813,C1905,C1907		CKSRYF104Z16
	C1909,C1911,C1913,C1915,C1944		CKSRYF104Z16
	C1419		CKSRYF223Z50
	C1409		CQMA272J50
	C1524		CQMA821J50

RESISTORS

R1104	Chip Resistor Array	RAB4C103J
R1804-R1807	Chip Resistor Array	RAB4C153J
R1121,R1131	Chip Resistor Array	RAB4C330J
R1134,R1923-R1926	Chip Resistor Array	RAB4C470J
R1527,R1528		RS1/10S100J
R1008		RS1/10S101J
R1757		RS1/10S181J
R1760		RS1/10S271J
R1758		RS1/10S560J
R1047,R1076		RS1/16S100I
R1039		RS1/16S1151F
R1117		RS1/16S1271F

BD-V3501, BD-V3510 BD-V3511

Mark	No.	Description	Part No.
	R1519,R1520,R1524 R1501,R1505,R1512 R1411,R1412,R1458,R1461 R1038 R1029,R1046		RS1/16S1500F RS1/16S2000F RS1/16S2002F RS1/16S2801F RS1/16S3900F
	R1502,R1503,R1506,R1507 R1514,R1515 R1098 R1103 R1062		RS1/16S4700F RS1/16S4700F RS1/16S4702F RS1/16S5101F RS1/16S56R0F
	R1405 R1526 R1457,R1460 R1097 R1901,R1904		RS1/16S6202F RS1/16S75R0F RS1/16S8201F RS1/16S9312F RS1LMF270J
	R1681 VR1061 (100Ω) VR1501 (470Ω) VR1503 (2.2kΩ) VR1066,VR1071 (10kΩ)		RS1LMF3R3J ACP1086 ACP1088 ACP1090 ACP1092
	Other Resistors		RS1/16S□□□J

OTHERS

△	M1001	Up/Down Tuner	BXF1145
△	M1501	RF Modulator	BXF1062
	CN1681	6P FFC Connector	52045-0645
	CN1921	19P FFC Connector	52045-1945
	JA1451,JA1452	3P Pin Jack	BKB1019
	JA1491	Jack	BKB1022
	CN1901	19P Plug	BKP1120
	CN1641	8P Mini DIN Socket	BKP1127
	CN1801	USB Connector	BKP1134
	CN1951	80P Connector RCPT	BKP1159
	X1621	(27.0MHz)	BSS1061
	X1622	(26.97305MHz)	BSS1101
	X1801	(6.0MHz)	BSS1102
	JA1650	Jack	RKN1026
	CN1961	3Pin Side Post	S3B-EH

B FRONT PANEL ASSY

SEMICONDUCTORS

	Q4101 Q4102,Q4103 D4106-D4109 D4104 D4105		2SA1037K HN1A01F 1SS355 BEL1042 DAN202K
	D4101-D4103 D4110,D4111		SLR-343MC UDZS5.6B

SWITCHES AND RELAYS

	S4101-S4107		ASG1051
--	-------------	--	---------

CAPACITORS

	C4101 C4102,C4104		CKSRYB103K50 CKSRYF104Z16
--	----------------------	--	------------------------------

RESISTORS

	Other Resistors		RS1/16S□□□J
--	-----------------	--	-------------

OTHERS

	M4101 CN4103	IR Receiver 19P FFC Connector	GP1UM267XK 9607S-19F
--	-----------------	----------------------------------	-------------------------

Mark	No.	Description	Part No.
C		CARD ASSY	
		OTHERS	

D POWER SUPPLY MODULE

POWER SUPPLY MODULE has no service part.

6. ADJUSTMENT

Note : Refer to the "Service Know-how (SKB02008)" for the details.

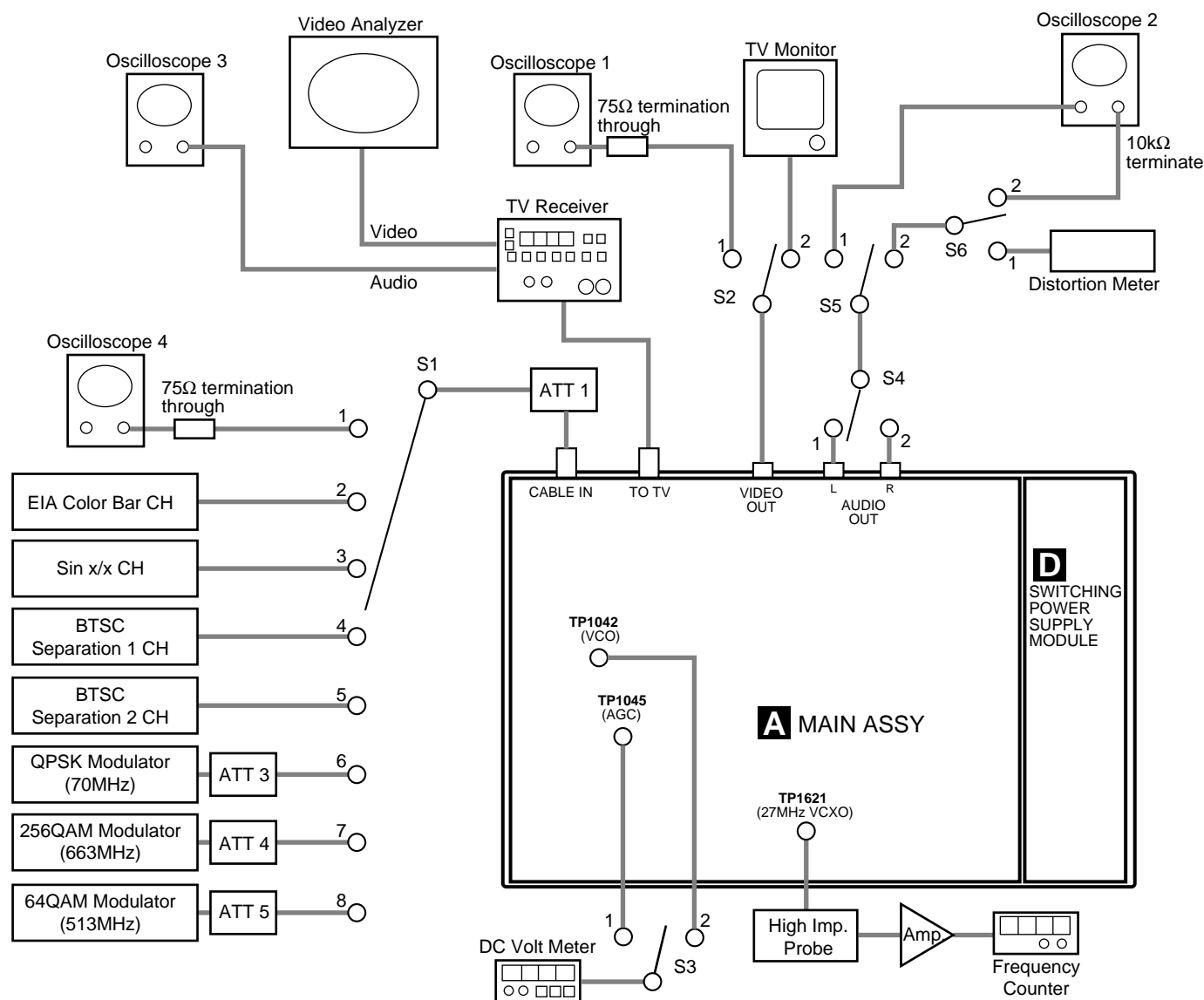


Fig.1 Adjustment Connections

• Input Signals

2	EIA Color Bar	Video	EIA Color Bar 87.5% Mod.
		Audio	400Hz Sin Wave +/- 25kHz Dev.
3	Sin x/x	Video	Sin x/x(including 0.5MHz and 3.75MHz spectrum)
		Audio	400Hz Sin Wave, +/- 25kHz deviation
4	BTSC Separation 1	Video	Black 0 IRE Flat Signal
		Audio	L = 1kHz, Sin Wave 10% Mod.
5	BTSC Separation 2	Video	Black 0 IRE Flat Signal
		Audio	L = 3kHz, Sin Wave 10% Mod.
6	QPSK Modulator	Center Freq. = 70MHz	
7	256QAM Modulator	Center Freq. = 663MHz	Video Stream = Full White APL100% MPEG2 Video
			Audio Stream = 1kHz FS -20dB MPEG1 Audio
8	64QAM Modulator	Center Freq. = 513MHz	Data channel

Note 1 : Perform the NTSC ch setting if necessary.

2 : Set the Fv/Fa difference to -12dB.

MC-Service

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 TROUBLESHOOTING

Note : Refer to the "Service Know-how (SKB02008)" for the details.

7.2 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

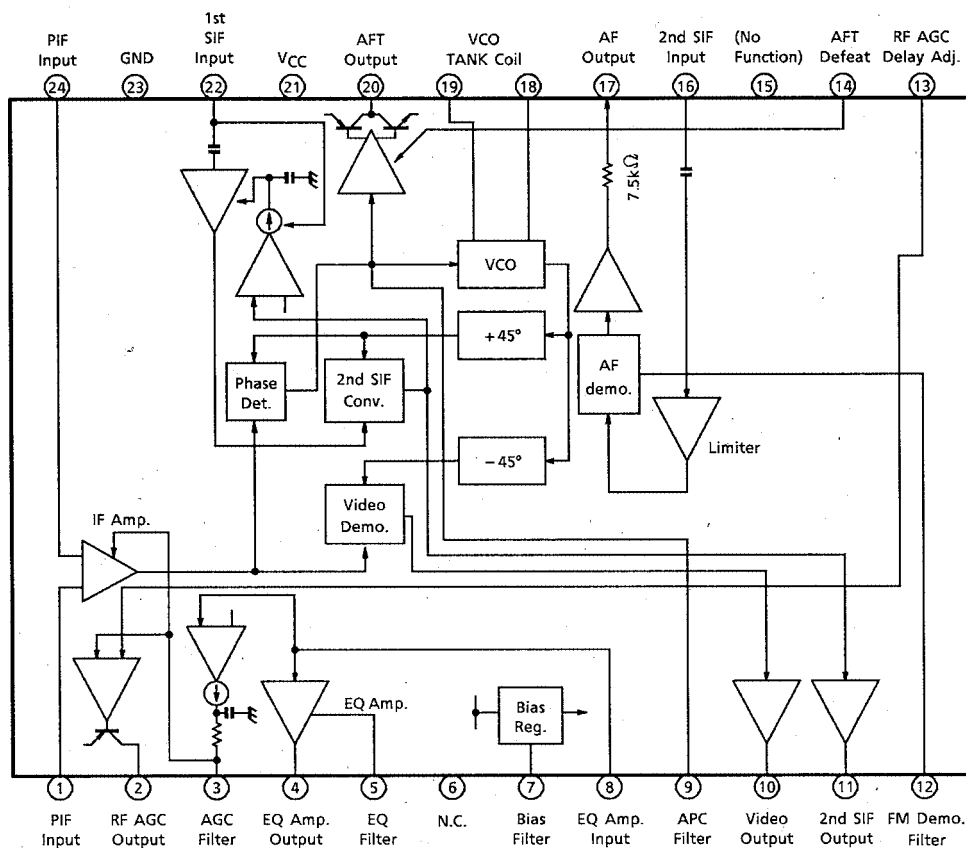
•List of IC

TA1274F, LA1150N, BCM7100KPB, CXA2134Q, NJM2534V, PST9222, AD8323ARU, UHC124

■ TA1274F (MAIN ASSY : IC1041)

• PIF IC

• Block Diagram

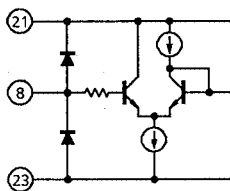
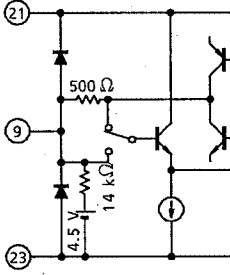
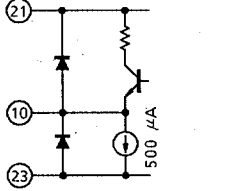
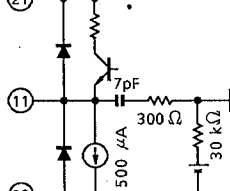
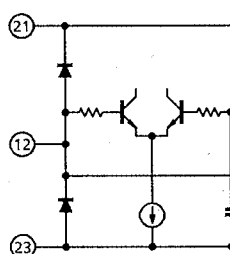


• Pin Function (1/4)

PIN No.	NAME	FUNCTION	INTERFACE CIRCUIT
1 24	PIF input	Differential type inputs Typical input level is 85 dB μ V.	
2	RF AGC output	Open collector (PNP) type output. Maximum output current is 0.5 mA.	
3	AGC filter	Connect a capacitor (0.47 μ F) between GND.	
4 5	EQ amplifier output EQ filter	No.4 terminal is EQ amplifier output. Maximum output current of this terminal is 5 mA. No.5 terminal is for EQ filter.	
6	N.C.		
7	Bias filter	Connect a capacitor (10 μ F) between GND.	

BD-V3501, BD-V3510 BD-V3511

• Pin Function (2/4)

PIN No.	NAME	FUNCTION	INTERFACE CIRCUIT
8	EQ amplifier input	EQ amplifier inputs.	
9	APC filter	Connect a resistor (330 Ω) and a capacitor (0.47 μF) between GND in series. And connect a capacitor (1000 pF) between this terminal and GND. Sensitivity of phase detector is 400 μA/rad (Typ.), and sensitivity of VCO is 1.8 MHz/V (Typ.).	
10	Video output	Connect a resistor (1 kΩ) between GND. Maximum output current is 10 mA.	
11	2 nd SIF output	2 nd SIF signal is outputted from this terminal.	
12	FM demodulating filter	Connect a capacitor (2.2 μF) between GND.	

• Pin Function (3/4)

PIN No.	NAME	FUNCTION	INTERFACE CIRCUIT
13	RF AGC delay adj.	This terminal is for RF AGC delay point adjustment. 100 μ A current is outputted from this terminal. Connect a resistor (5.6 k Ω) and a volume (10 k Ω) between GND in series.	
14	AFT Defeat SW	This terminal is AFT defeat switch. To open this terminal, AFT function is activate. To connect GND this terminal, AFT function is not activate. And terminal No.20 goes to 1/2 V _{CC} .	
15	(No function)	This terminal must be connected to V _{CC} .	—
16	2 nd SIF input	This terminal 2 nd SIF input. This terminal must be decoupled outer circuit on D.C.	
17	AF output	Output resistance of this terminal is 7.5 k Ω .	
18 19	VCO tank	Connect tank for VCO between these terminals. Capacitance of the VCO tank is 27 pF.	

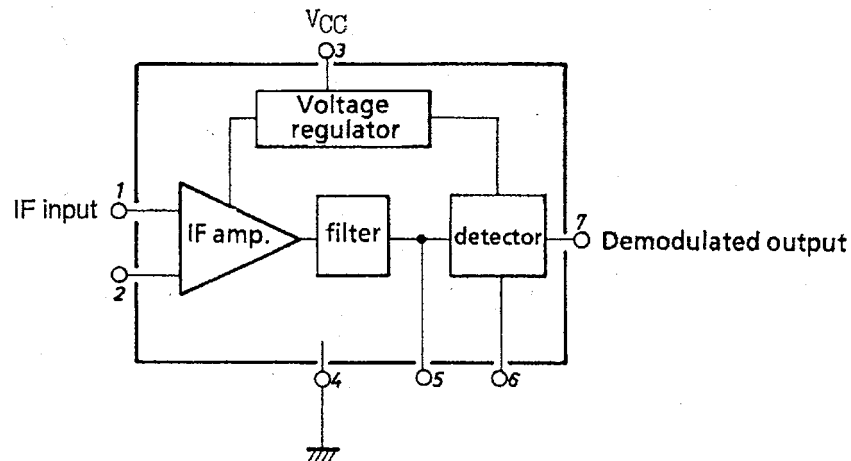
BD-V3501, BD-V3510
BD-V3511

● Pin Function (4/4)

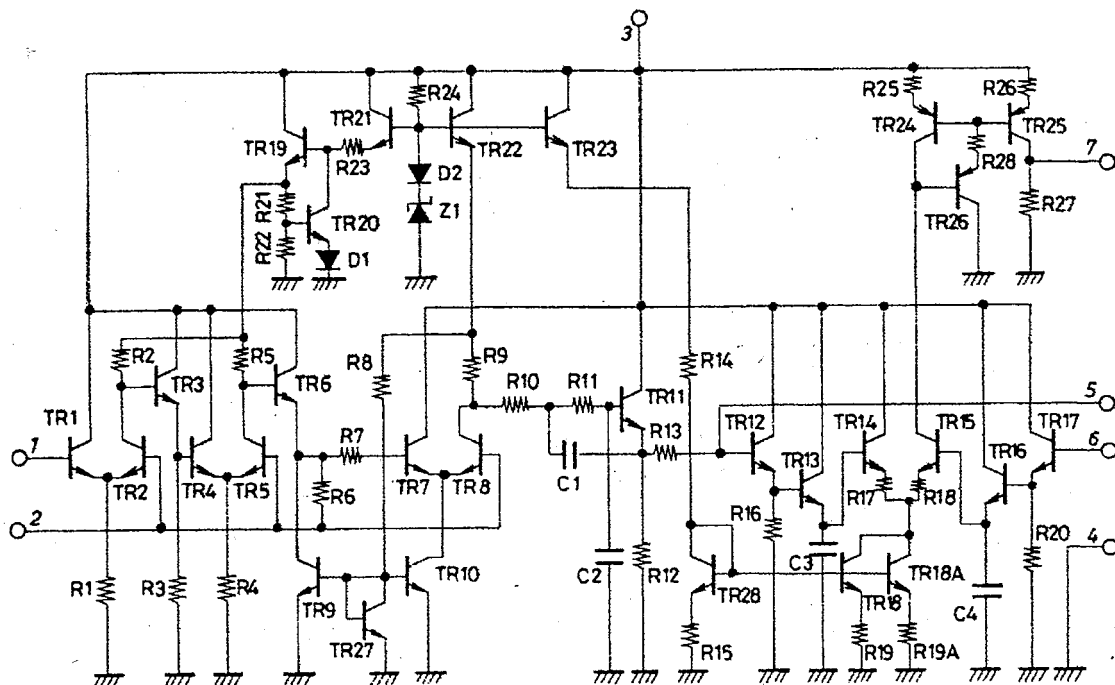
PIN No.	NAME	FUNCTION	INTERFACE CIRCUIT
20	AFT output	Push-pull type current output. Reverse type AFT.	
21	VCC	Recommended voltage range is 9.0 V ± 10%.	—
22	SIF input	In use inter-carrier application, connect this terminal to GND. In this condition, the SIF amplifier sets gain minimum.	
23	GND	—	—

■ LA1150N (MAIN ASSY : IC1071)

- Linear IC
- Block Diagram



- Equivalent Circuit

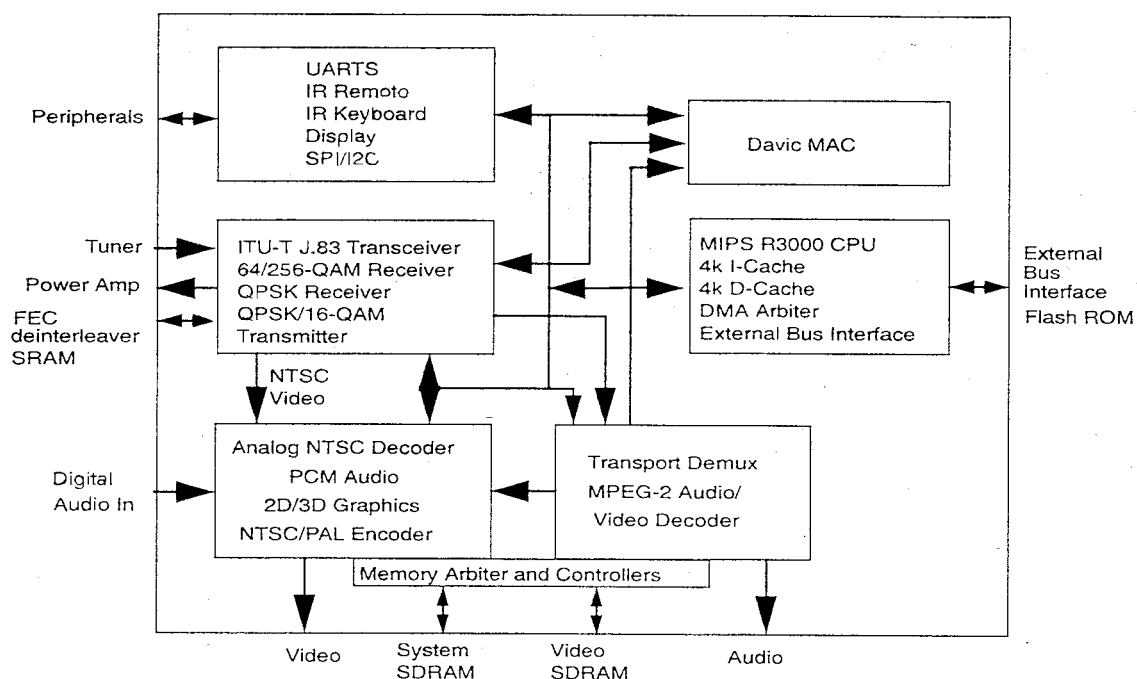


BD-V3501, BD-V3510 BD-V3511

■ BCM7100KPB (MAIN ASSY : IC1101)

- System IC

• Block Diagram



● Pin Function (1/10)

Pin Number	Signal Name	Type	Drive	Tolerance
E5	VDD3_3	Digital Pwr	3.3V	5V
C3	TCK	ID	TTL	5V
D5	TMS	IU	TTL	5V
C4	TDO	Tri-output	4mA	5V
A2	TDI	IU	TTL	5V
B3	TRSTB	IU	TTL	5V
E6	GND3_3	Digital Gnd	GND	-
C5	PCST[0]	Tri-output	4mA	5V
A3	PCST[1]	Tri-output	4mA	5V
B4	PCST[2]	Tri-output	4mA	5V
D6	PCST[3]	Tri-output	4mA	5V
B5	PCST[4]	Tri-output	4mA	5V
A4	PCST[5]	Tri-output	4mA	5V
E7	VDD2_5	Digital Pwr	2.5V	-
C6	TPC_1	Tri-output	4mA	5V
B6	MISC[6]	I/O	TTL/4mA	5V
A5	MISC[5]	I/O	TTL/4mA	5V
D7	MISC[4]	I/O	TTL/4mA	5V
C7	MISC[3]	I/O	TTL/4mA	5V
B7	MISC[2]	I/O	TTL/4mA	5V
E8	GND2_5	Digital Gnd	Gnd	-
A6	MISC[1]	I/O	TTL/4mA	5V
A7	MISC[0]	I/O	TTL/4mA	5V
D8	VID_CLMP	Tri-output	4mA	5V
C8	SCL	O	4mA	5V
B8	SDA	I/OD	TTL/4mA	5V
A8	I2S_LR	I	TTL	5V
E9	VDD3_3	Digital Pwr	3.3V	-
D9	I2S_CLK	I	TTL	5V
C9	I2S_DATA	I	TTL	5V
B9	SPDIF	O	4mA	5V
E10	XTAL_VDD2_5	Analog Pwr	2.5V	-
A9	CLK27_XTALO	XO	Xtal	2.5V
A10	CLK27_XTALI	XI	Xtal	2.5V
D10	XTAL_GND2_5	Analog Gnd	Gnd	-
C10	AGND_CUPLL	Analog Gnd	Gnd	-
B10	AVDD_CUPLL	Analog Pwr	2.5V	-
E11	VDD_SDC	Digital Pwr	3.3V	-
D11	LEFT_POS	O	6mA	5V
C11	LEFT_NEG	O	6mA	5V
B11	RIGHT_POS	O	6mA	5V
A11	RIGHT_NEG	O	6mA	5V

BD-V3501, BD-V3510 BD-V3511

● Pin Function (2/10)

Pin Number	Signal Name	Type	Drive	Tolerance
E12	GND_SDC	Digital Gnd	GND	5V
D12	SCK	O	4mA	5V
C12	MOSI	O	4mA	5V
B12	MISO	I	TTL	5V
A12	SS_N	O	4mA	5V
A13	SY_DATA[31]	I/O	TTL/4mA	3.3V
E13	GND3_3	Digital Gnd	GND	-
D13	SY_DATA[0]	I/O	TTL/4mA	3.3V
C13	SY_DATA[15]	I/O	TTL/4mA	3.3V
B13	SY_DATA[16]	I/O	TTL/4mA	3.3V
B14	SY_DATA[29]	I/O	TTL/4mA	3.3V
C14	SY_DATA[24]	I/O	TTL/4mA	3.3V
D14	SY_DATA[1]	I/O	TTL/4mA	3.3V
E14	VDD2_5	Digital Pwr	2.5V	-
A14	SY_DATA[30]	I/O	TTL/4mA	3.3V
A15	SY_DATA[17]	I/O	TTL/4mA	3.3V
B15	SY_DATA[28]	I/O	TTL/4mA	3.3V
C15	SY_DATA[13]	I/O	TTL/4mA	3.3V
D15	SY_DATA[2]	I/O	TTL/4mA	3.3V
E15	GND2_5	Digital Gnd	GND	-
A16	SY_DATA[18]	I/O	TTL/4mA	3.3V
B16	SY_DATA[27]	I/O	TTL/4mA	3.3V
C16	SY_DATA[12]	I/O	TTL/4mA	3.3V
D16	SY_DATA[3]	I/O	TTL/4mA	3.3V
E16	VDD3_3	Digital Pwr	3.3V	-
A17	SY_DATA[26]	I/O	TTL/4mA	3.3V
B17	SY_DATA[19]	I/O	TTL/4mA	3.3V
C17	SY_DATA[11]	I/O	TTL/4mA	3.3V
D17	SY_DATA[4]	I/O	TTL/4mA	3.3V
E17	GND3_3	Digital Gnd	GND	-
A18	SY_DATA[25]	I/O	TTL/4mA	3.3V
B18	SY_DATA[20]	I/O	TTL/4mA	3.3V
C18	SY_DATA[10]	I/O	TTL/4mA	3.3V
D18	SY_DATA[5]	I/O	TTL/4mA	3.3V
A19	SY_DATA[24]	I/O	TTL/4mA	3.3V
E18	VDD2_5	Digital Pwr	2.5V	-
B19	SY_DATA[21]	I/O	TTL/4mA	3.3V
C19	SY_DATA[9]	I/O	TTL/4mA	3.3V
D19	SY_DATA[6]	I/O	TTL/4mA	3.3V
A20	SY_DATA[22]	I/O	TTL/4mA	3.3V
B20	SY_DATA[23]	I/O	TTL/4mA	3.3V
C20	SY_DATA[8]	I/O	TTL/4mA	3.3V
E19	GND2_5	Digital Gnd	GND	-
A21	SY_CLK81[1]	i/O	8mA	3.3V
D20	SY_DATA[7]	I/O	TTL/4mA	3.3V

● Pin Function (3/10)

Pin Number	Signal Name	Type	Drive	Tolerance
B21	SY_WEB	O	6mA	3.3V
A22	SY_CLK81[0]	i/O	8mA	3.3V
A23	SY_ADDR[13]	i/O	6mA	3.3V
C21	SY_DMQUUP[0]	O	4mA	3.3V
E20	VDD3_3	Digital Pwr	3.3V	-
A24	SY_ADDR[8]	i/O	6mA	3.3V
B22	SY_ADDR[12]	i/O	6mA	3.3V
D21	SY_DMQLO[0]	O	4mA	3.3V
A25	SY_ADDR[1]	i/O	6mA	3.3V
B23	SY_ADDR[9]	i/O	6mA	3.3V
C22	SY_ADDR[11]	i/O	6mA	3.3V
E21	GND3_3	Digital Gnd	GND	-
B24	SY_ADDR[0]	i/O	6mA	3.3V
C23	SY_ADDR[10]	i/O	6mA	3.3V
A26	SY_ADDR[5]	i/O	6mA	3.3V
D22	SY_DMQUUP[1]	O	4mA	3.3V
D23	SY_DMQLO[1]	O	4mA	3.3V
E22	VDD2_5	Digital Pwr	2.5V	-
B25	SY_ADDR[6]	i/O	6mA	3.3V
C24	SY_ADDR[7]	i/O	6mA	3.3V
B26	SY_ADDR[3]	i/O	6mA	3.3V
D24	SY_RASB	O	6mA	3.3V
E23	SY_CASB	O	6mA	3.3V
C25	SY_ADDR[2]	i/O	6mA	3.3V
F22	GND2_5	Digital GND	GND	-
E24	SY_CSB[0]	i/O	6mA	3.3V
D25	SY_CSB[1]	i/O	6mA	3.3V
C26	SY_ADDR[4]	i/O	6mA	3.3V
F23	HS_DATA[1]	O	4mA	5V
F24	HS_DATA[0]	O	4mA	5V
E25	PKT_CLK	I	TTL	5V
G22	VDD3_3	Digital Pwr	3.3V	-
D26	PKT_SYNC	I	TTL	5V
F25	PKT_DATA	I	TTL	5V
E26	VP_ADDR[3]	i/O	4mA	3.3V
G23	VP_WEB	O	4mA	3.3V
G24	VP_ADDR[1]	i/O	4mA	3.3V
G25	VP_ADDR[5]	i/O	4mA	3.3V
H22	GND3_3	Digital Gnd	GND	-
F26	VP_ADDR[4]	i/O	4mA	3.3V
G26	VP_ADDR[2]	i/O	4mA	3.3V
H23	VP_DMQLO	O	4mA	3.3V
H24	VP_ADDR[7]	i/O	4mA	3.3V
H25	VP_ADDR[0]	i/O	4mA	3.3V
H26	VP_ADDR[6]	i/O	4mA	3.3V

BD-V3501, BD-V3510 BD-V3511

● Pin Function (4/10)

Pin Number	Signal Name	Type	Drive	Tolerance
J22	VDD2_5	Digital Pwr	2.5V	-
J23	VP_DMQUUP	O	4mA	3.3V
J24	VP_ADDR[11]	i/O	4mA	3.3V
J25	VP_ADDR[8]	i/O	4mA	3.3V
J26	VP_ADDR[10]	i/O	4mA	3.3V
K22	GND2_5	Digital Gnd	GND	-
K23	VP_DATA[8]	I/O	TTL/4mA	3.3V
K24	VP_CASB	O	4mA	3.3V
K25	VP_RASB	O	4mA	3.3V
K26	VP_ADDR[9]	i/O	4mA	3.3V
L22	VDD3_3	Digital Pwr	3.3V	-
L23	VP_DATA[9]	I/O	TTL/4mA	3.3V
L24	VP_DATA[6]	I/O	TTL/4mA	3.3V
L25	VP_DATA[7]	I/O	TTL/4mA	3.3V
L26	VP_CLK54	O	4mA	3.3V
M22	VDD2_5	Digital Pwr	2.5V	-
M23	VP_DATA[10]	I/O	TTL/4mA	3.3V
M24	VP_DATA[3]	I/O	TTL/4mA	3.3V
M25	VP_DATA[4]	I/O	TTL/4mA	3.3V
M26	VP_DATA[5]	I/O	TTL/4mA	3.3V
N26	VP_DATA[12]	I/O	TTL/4mA	3.3V
N22	GND3_3	Digital Gnd	GND	-
N23	VP_DATA[11]	I/O	TTL/4mA	3.3V
N24	VP_DATA[13]	I/O	TTL/4mA	3.3V
N25	VP_DATA[2]	I/O	TTL/4mA	3.3V
P25	VP_DATA[14]	I/O	TTL/4mA	3.3V
P24	VP_DATA[15]	I/O	TTL/4mA	3.3V
P23	VP_DATA[1]	I/O	TTL/4mA	3.3V
P22	VDD3_3	Digital Pwr	3.3V	-
P26	VP_DATA[0]	I/O	TTL/4mA	3.3V
R26	SC_IO[1]	I/O	TTL/4mA	5V
R25	SC_IO[0]	I/O	TTL/4mA	5V
R24	SC_CLK[1]	O	4mA	5V
R23	SC_CLK[0]	O	4mA	5V
R22	SC_RST[1]	O	4mA	5V
T26	SC_RST[0]	O	4mA	5V
T25	SC_PRE[1]	I	TTL	5V
T24	DAVDD_QDAC	Digital Pwr	2.5V	-
T23	DGND_QADC	Digital Gnd	GND	-
T22	VDD2_5	Digital Pwr	2.5V	-
U26	CHROMA	AO		2.5V
U25	LUMA	AO		2.5V
U24	AGND_QDAC	Analog Gnd	GND	-
U23	BLUE	AO		2.5V
U22	GND2_5	Digital Gnd	GND	-

● Pin Function (5/10)

Pin Number	Signal Name	Type	Drive	Tolerance
V26	AVDD_QDAC	Analog Pwr	2.5V	-
V25	COMPOSITE	AO		2.5V
V24	AGND_BG	Analog Gnd	GND	-
W26	IREF	AI		2.5V
V23	SC_PRES[0]	I	TTL	5V
V22	VDD3_3	Digital Pwr	3.3V	-
W25	SC_VCC[1]	O	4mA	5V
W24	SC_VCC[0]	O	4mA	5V
Y26	SC_GPIO[1]	I/O	TTL/4mA	5V
Y25	SC_GPIO[0]	I/O	TTL/4mA	5V
Y24	RxDtype[2]	O	4mA	5V
W23	RxDtype[1]	O	4mA	5V
W22	VDD2_5	Digital Pwr	2.5V	-
AA26	RxDtype[0]	O	4mA	5V
AB26	RxValid	O	4mA	5V
AA25	RxSoF	O	4mA	5V
Y23	PWM[1]	O	4mA	5V
AC26	PWM[0]	O	4mA	5V
AD26	MISC[7]	I/O	TTL/4mA	5V
Y22	GND3_3	Digital Gnd	GND	-
AA24	pPFAIL	I/o	TTL	5V
AB25	PCRDAC	O	4mA	5V
AB24	CLAMP0	O	4mA	5V
AE26	CLK27_OUT	O	4mA	5V
AA23	pA[23]	i/O	6mA	5V
AC25	pD[0]	I/O	TTL/6mA	5V
AA22	pA[22]	i/O	6mA	5V
AD25	pD[1]	I/O	TTL/6mA	5V
AE25	pA[21]	i/O	6mA	5V
AC24	pD[2]	I/O	TTL/6mA	5V
AB23	pA[20]	i/O	6mA	5V
AF26	pD[3]	I/O	TTL/6mA	5V
AC23	pA[19]	i/O	6mA	5V
AB22	VDD3_3	Digital Pwr	3.3V	-
AD24	pD[4]	I/O	TTL/6mA	5V
AE24	pA[18]	i/O	6mA	5V
AD23	pD[5]	I/O	TTL/6mA	5V
AC22	pA[17]	i/O	6mA	5V
AE23	pD[6]	I/O	TTL/6mA	5V
AB21	GND3_3	Digital Gnd	GND	-
AF25	pA[16]	i/O	6mA	5V
AD22	pD[7]	I/O	TTL/6mA	5V
AC21	pA[15]	i/O	6mA	5V
AF24	pD[8]	I/O	TTL/6mA	5V
AD21	pA[14]	i/O	6mA	5V

BD-V3501, BD-V3510 BD-V3511

● Pin Function (6/10)

Pin Number	Signal Name	Type	Drive	Tolerance
AF23	pD[9]	I/O	TTL/6mA	5V
AB20	VDD2_5	Digital Pwr	2.5V	-
AE22	pA[13]	i/O	6mA	5V
AF22	pD[10]	I/O	TTL/6mA	5V
AE21	pA[12]	i/O	6mA	5V
AC20	pD[11]	I/O	TTL/6mA	5V
AF21	pA[11]	i/O	6mA	5V
AD20	pD[12]	I/O	TTL/6mA	5V
AB19	GND2_5	Digital Gnd	GND	-
AE20	pA[10]	i/O	6mA	5V
AF20	pD[13]	I/O	TTL/6mA	5V
AC19	pA[9]	i/O	6mA	5V
AD19	pD[14]	I/O	TTL/6mA	5V
AE19	pA[8]	i/O	6mA	5V
AF19	pD[15]	I/O	TTL/6mA	5V
AB18	VDD3_3	Digital Pwr	3.3V	-
AC18	pA[7]	i/O	6mA	5V
AD18	pTA	IU/o	TTL	5V
AE18	pA[6]	i/O	6mA	5V
AF18	pCS[5]	O	4mA	5V
AB17	GND3_3	Digital Gnd	GND	-
AC17	pA[5]	i/O	6mA	5V
AD17	pCS[4]	O	4mA	5V
AE17	pA[4]	i/O	6mA	5V
AF17	pCS[3]	O	4mA	5V
AB16	VDD2_5	Digital Pwr	2.5V	-
AC16	pA[3]	i/O	6mA	5V
AD16	pCS[2]	O	4mA	5V
AE16	pA[2]	i/O	6mA	5V
AF16	pCS[1]	O	4mA	5V
AB15	GND2_5	Digital Gnd	GND	-
AC15	pA[1]	i/O	6mA	5V
AD15	pCS[0]	O	4mA	5V
AE15	pA[0]	i/O	6mA	5V
AF15	pRD	O	6mA	5V
AF14	pWEB	O	6mA	5V
AB14	VDD3_3	Digital Pwr	3.3V	-
AC14	pTEA	IU/o	TTL	5V
AD14	pTS	iU/O	6mA	5V
AE14	pRW	iU/O	6mA	5V
AE13	pTSIZE[1]	iU/O	6mA	5V
AD13	pTSIZE[0]	iU/O	6mA	5V
AC13	EBI_RST	O	6mA	5V
AB13	GND3_3	Digital Gnd	GND	-
AF13	pPCLK	O	8mA	5V

● Pin Function (7/10)

Pin Number	Signal Name	Type	Drive	Tolerance
AF12	pOB_AGC	O	4mA	5V
AE12	pOB_CLK	O	4mA	5V
AD12	pSERDATO	O	4mA	5V
AC12	pSTAT1	O	4mA	5V
AB12	pSTAT0	O	4mA	5V
AF11	pRESET	IU	TTL	5V
AE11	pLS[4]	O	4mA	5V
AD11	pLS[3]	O	4mA	5V
AC11	pLS[2]	O	4mA	5V
AB11	VDD2_5	Digital Pwr	2.5V	-
AF10	pLS[1]	O	4mA	5V
AE10	pLS[0]	O	4mA	5V
AD10	pLD[7]	O	4mA	5V
AC10	pLD[6]	O	4mA	5V
AB10	GND2_5	Digital Gnd	GND	-
AF9	pLD[5]	O	4mA	5V
AE9	pLD[4]	O	4mA	5V
AD9	pLD[3]	O	4mA	5V
AC9	pLD[2]	O	4mA	5V
AF8	pLD[1]	O	4mA	5V
AB9	pLD[0]	O	4mA	5V
AE8	pRXDA	I/o	TTL	5V
AD8	pRXDB	I	TTL	5V
AC8	pRXDC	I	TTL	5V
AF7	pTXDA	i/O	4mA	5V
AE7	pTXDB	i/O	4mA	5V
AD7	pTXDC	i/O	4mA	5V
AB8	VDD3_3	Digital Pwr	3.3V	-
AF6	pIRINT	O	4mA	5V
AC7	pIRIN	I	TTL	5V
AF5	pIROUT	O	4mA	5V
AF4	pRFTCK	OD	4mA	5V
AE6	pRFTD	OD	4mA	5V
AE5	DAGND_OBADC	Digital Gnd	GND	-
AB7	GND3_3	Digital Gnd	GND	-
AD6	DAVDD_OBADC	Digital Pwr	2.5V	-
AE4	AGND_OBADC	Analog Gnd	GND	-
AC6	pOB_IFn	AI		2.5V
AD5	pOB_IFp	AI		2.5V
AD4	AVDD_OBADC	Analog Pwr	2.5V	-
AE3	TMODE[3]	AI	Static (2.5V/0V)	2.5V
AB6	TMODE[2]	AI	Static (2.5V/0V)	2.5V
AC5	TMODE[1]	AI	Static (2.5V/0V)	2.5V
AD3	TMODE[0]	AI	Static (2.5V/0V)	2.5V
AC4	AVDD_SYNTH	Analog Pwr	2.5V	-

BD-V3501, BD-V3510 BD-V3511

● Pin Function (8/10)

Pin Number	Signal Name	Type	Drive	Tolerance
AF3	pOB_IFVCon	AO		2.5V
AF2	pOB_IFVCOp	AO		2.5V
AF1	AGND_SYNTH	Analog Gnd	GND	-
AB5	VDD2_5	Digital Pwr	2.5V	-
AB4	pRFTE1	OD	4mA	5V
AC3	pRFTE0	OD	4mA	5V
AE2	pIO[9]	I/O	TTL/4mA	5V
AD2	pIO[8]	I/O	TTL/4mA	5V
AB3	pIO[7]	I/O	TTL/4mA	5V
AA5	GND2_5	Digital Gnd	GND	-
AC2	pIO[6]	I/O	TTL/4mA	5V
AA4	pIO[5]	I/O	TTL/4mA	5V
AE1	pIO[4]	I/O	TTL/4mA	5V
AB2	pIO[3]	I/O	TTL/4mA	5V
AA3	pIO[2]	I/O	TTL/4mA	5V
AD1	pIO[1]	I/O	TTL/4mA	5V
Y5	VDD3_3	Digital Pwr	3.3V	-
AC1	pIO[0]	I/O	TTL/4mA	5V
AA2	pEXLATCTL	O	4mA	5V
Y4	DUAL_AGC	O	4mA	5V
AB1	AGC_CTL	OD	8mA	5V
Y3	IB_ADBCLK	i/O	4mA	5V
AA1	RST_OUT	O	4mA	5V
W5	VDD2_5	Digital Pwr	2.5V	-
Y2	PS_SYNC	I/O	4mA	5V
Y1	PS_CLK	I/O	4mA	5V
W4	CLK_ACC	I/O	4mA	5V
W3	S_DATA	I/O	4mA	5V
W2	TX_OEN	O	4mA	5V
W1	PWR_STAT[5]	i/O	4mA	5V
V5	GND3_3	Digital Gnd	GND	-
V4	PWR_STAT[4]	i/O	4mA	5V
V3	PWR_STAT[3]	i/O	4mA	5V
V2	PWR_STAT[2]	i/O	4mA	5V
V1	PWR_STAT[1]	i/O	4mA	5V
U5	VDD3_3	Digital Pwr	3.3V	-
U4	PWR_STAT[0]	i/O	4mA	5V
U3	TX_CLK	I/O	TTL/4mA	5V
U2	TX_DATA	ID	TTL	5V
U1	TX_ENABb	IU	TTL	5V
T5	GND2_5	Digital Gnd	GND	-
T4	TX_CLAV	Tri-output	4mA	5V
T3	TX_SOC	ID	TTL	5V
T2	TX_NOW	ID	TTL	5V
R5	VDD_XTAL	Analog Pwr	2.5V	-

● Pin Function (9/10)

Pin Number	Signal Name	Type	Drive	Tolerance
T1	XTALO	XO	Xtal	2.5V
R1	XTALI	XI	Xtal	2.5V
R4	GND_XTAL	Analog Gnd	GND	-
R3	AGND_URFPLL	Analog Gnd	GND	-
R2	AVDD_URFPLL	Analog Pwr	2.5V	-
P4	DAGND_URFDAC	Digital Gnd	GND	-
P5	VDD2_5	Digital Pwr	2.5V	-
P3	DAVDD_URFDAC	Digital Pwr	2.5V	-
P2	AGND_URFDAC	Analog Gnd	GND	-
P1	TX_DACn	AO		2.5V
N1	TX_DACp	AO		2.5V
N2	AGND_URFDAC	Analog Gnd	GND	-
N3	AVDD_URFDAC	Analog Pwr	2.5V	-
N5	VDD3_3	Digital Pwr	3.3V	-
N4	IBIAS_DAC	AI		2.5V
M1	pKD[0]	I	TTL	5V
M2	pKD[1]	I	TTL	5V
M3	R_DATA[3]	I/O	TTL/4mA	5V
M4	R_ADDR[10]	i/O	4mA	5V
M5	R_OE	I/O	4mA	5V
L1	R_DATA[1]	I/O	TTL/4mA	5V
L2	R_DATA[4]	I/O	TTL/4mA	5V
L3	R_DATA[2]	I/O	TTL/4mA	5V
L4	RD_ADDR[11]	i/O	4mA	5V
L5	GND3_3	Digital GND	GND	-
K1	R_DATA[6]	I/O	TTL/4mA	5V
K2	R_DATA[0]	I/O	TTL/4mA	5V
K3	R_DATA[5]	I/O	TTL/4mA	5V
K4	R_ADDR[2]	I/O	4mA	5V
K5	VDD3_3	Digital Pwr	3.3v	-
J1	R_ADDR[1]	I/O	4mA	5V
J2	R_DATA[7]	I/O	TTL/4mA	5V
J3	R_ADDR[0]	I/O	4mA	5V
J4	R_ADDR[3]	I/O	4mA	5V
H1	R_ADDR[8]	I/O	4mA	5V
J5	GND2_5	Digital Gnd	GND	-
H2	R_ADDR[6]	I/O	4mA	5V
H3	R_ADDR[9]	I/O	4mA	5V
H4	R_ADDR[4]	I/O	4mA	5V
G1	R_ADDR[12]	I/O	4mA	5V
G2	R_ADDR[13]	I/O	4mA	5V
G3	R_ADDR[7]	I/O	4mA	5V
H5	VDD2_5	Digital Pwr	2.5V	-
F1	R_ADDR[14]	I/O	4mA	5V
G4	R_ADDR[5]	I/O	4mA	5V

BD-V3501, BD-V3510 BD-V3511

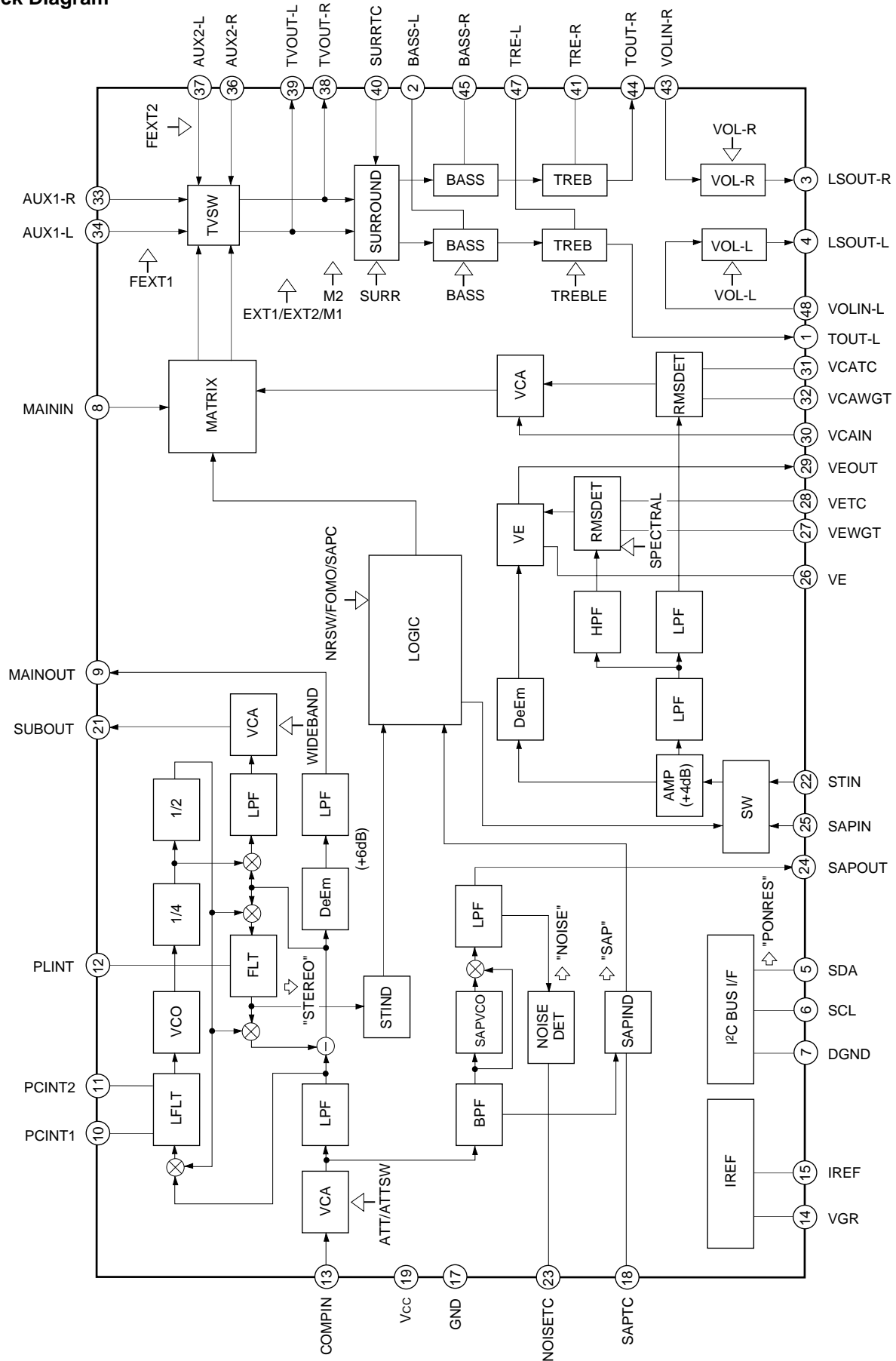
● Pin Function (10/10)

Pin Number	Signal Name	Type	Drive	Tolerance
F2	R_WE	O	4mA	5V
E1	pKD[2]	I	TTL	5V
E2	pKD[3]	I	TTL	5V
F3	AGND_IBPLL	Analog Gnd	GND	-
G5	AVDD_IBPLL	Analog Pwr	2.5V	-
D1	DAVDD_IBADC	Digital Pwr	2.5V	-
D2	DAGND_IBADC	Digital Gnd	GND	-
F4	AGND_IBADC	Analog Gnd	GND	-
E3	AVDD_IBADC	Analog Pwr	2.5V	-
C1	VDEC_AIN	AI		2.5V
C2	VDEC_AIP	AI		2.5V
F5	GND3_3	Digital Gnd	GND	-
D3	AGND_IBADC	Analog Gnd	GND	-
E4	AVDD_IBADC	Analog Pwr	2.5V	-
B1	pIB_IFp	AI		2.5V
A1	pIB_IFn	AI		2.5V
B2	AGND_IBADC	Analog Gnd	GND	-
D4	AVDD_IBADC	Analog Pwr	2.5V	-

■ CXA2134Q (MAIN ASSY : IC1401)

• BTSC/SAP Decoder IC

• Block Diagram



BD-V3501, BD-V3510 BD-V3511

• Pin Function (1/8)

(Ta = 25°C, Vcc = 9V)

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
1	TOUT-L	4.0V		Treble output pin. (Left channel)
44	TOUT-R	4.0V		Treble output pin. (Right channel)
2	BASS-L	4.0V		Bass filter pin. (Left channel)
45	BASS-R	4.0V		Bass filter pin. (Right channel)
3	LSOUT-R	4.0V		LSOUT right channel output pin.
4	LSOUT-L	4.0V		LSOUT left channel output pin.
5	SDA	—		Serial data I/O pin. $V_{IH} > 3.0V$ $V_{IL} < 1.5V$

● Pin Function (2/8)

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
6	SCL	—		Serial clock input pin. $V_{IH} > 3.0V$ $V_{IL} < 1.5V$
7	DGND	—		Digital block GND.
8	MAININ	4.0V		Input pin of (L + R) signal from MAINOUT (Pin 9).
9	MAINOUT	4.0V		(L + R) signal output pin.

BD-V3501, BD-V3510 BD-V3511

● Pin Function (3/8)

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
10	PCINT1	4.0V		Stereo block PLL loop filter integrating pin.
11	PCINT2	4.0V		
12	PLINT	5.1V		Pilot cancel circuit loop filter integrating pin. (Connect a 1μF capacitor between this pin and GND.)
13	COMPIN	4.0V		Audio multiplexing signal input pin.

● Pin Function (4/8)

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
14	VGR	1.3V		Band gap reference output pin. (Connect a 10 μ F capacitor between this pin and GND.)
15	IREF	1.3V		Set the filter and VCO reference current. The reference current is adjusted with the BUS DATA based on the current which flows to this pin. (Connect a 62k \pm 1% resistor between this pin and GND.)
17	GND	—		Analog block GND.
18	SAPTC	4.5V		Set the time constant for the SAP carrier detection circuit. (Connect a 4.7 μ F capacitor between this pin and GND.)
19	Vcc	—		Supply voltage pin.

BD-V3501, BD-V3510 BD-V3511

● Pin Function (5/8)

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
21	SUBOUT	4.0V		(L – R) signal output pin.
22	STIN	4.0V		Input pin of (L – R) signal from SUBOUT (Pin 21).
25	SAPIN	4.0V		Input pin of (SAP) signal from SUPOUT (Pin 24).
23	NOISETC	3.0V		Set the time constant for the noise detection circuit. (Connect a 4.7μF capacitor between this pin and GND.)
24	SAPOUT	4.0V		SAP FM detector output pin.

● Pin Function (6/8)

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
26	VE	4.0V		Variable de-emphasis integrating pin. (Connect a 2700pF capacitor and a 3.3k resistor in series between this pin and GND.)
27	VEWGT	4.0V		Weight the variable de-emphasis control effective value detection circuit. (Connect a 0.047μF capacitor and a 3k resistor in series between this pin and GND.)
28	VETC	1.7V		Determine the restoration time constant of the variable de-emphasis control effective value detection circuit. (The specified restoration time constant can be obtained by connecting a 3.3μF capacitor between this pin and GND.)
29	VEOUT	4.0V		Variable de-emphasis output pin. (Connect a 4.7μF non-polar capacitor between Pins 29 and 30.)

BD-V3501, BD-V3510 BD-V3511

● Pin Function (7/8)

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
30	VCAIN	4.0V		VCA input pin. Input the variable de-emphasis output signal from Pin 29 via a coupling capacitor.
31	VCATC	1.7V		Determine the restoration time constant of the VCA control effective value detection circuit. (The specified restoration time constant can be obtained by connecting a 10μF capacitor between this pin and GND.)
32	VCAWGT	4.0V		Weight the VCA control effective value detection circuit. (Connect a 1μF capacitor and a 3.9k resistor in series between this pin and GND.)
33	AUX1-R	4.0V		Right channel external input 1 pin.
34	AUX1-L	4.0V		Left channel external input 1 pin.
36	AUX2-R	4.0V		Right channel external input 2 pin.
37	AUX2-L	4.0V		Left channel external input 2 pin.

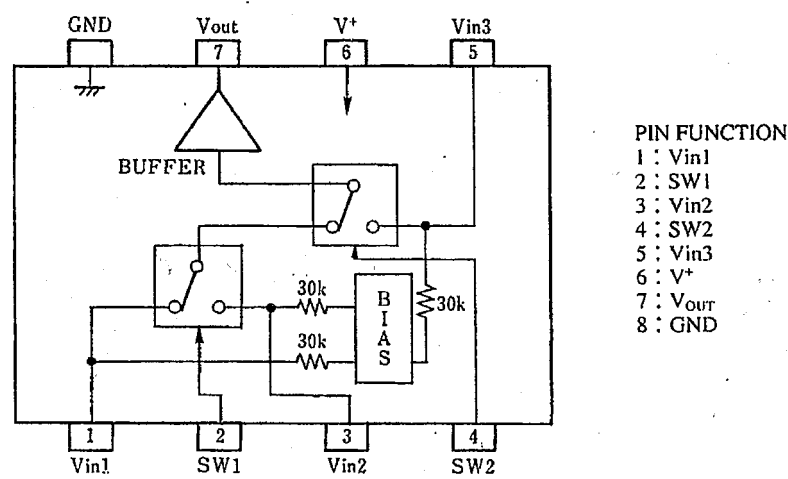
● Pin Function (8/8)

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
38	TVOUT-R	4.0V		TVOUT right channel output pin.
39	TVOUT-L	4.0V		TVOUT left channel output pin.
40	SURRTC	4.0V		<p>Set the center frequency of the Surround circuit phase shifter.</p> <p>The frequency is determined by the built-in resistor and the external capacitor.</p> <p>(Connect a 0.022μF capacitor between this pin and GND.)</p>
41	TRE-R	4.0V		Treble filter pin. (Right channel)
47	TRE-L	4.0V		Treble filter pin. (Left channel)
43	VOLIN-R	4.0V		Volume right channel input pin.
48	VOLIN-L	4.0V		Volume left channel input pin.
16 20 35 42 46	NC	—		

BD-V3501, BD-V3510
BD-V3511

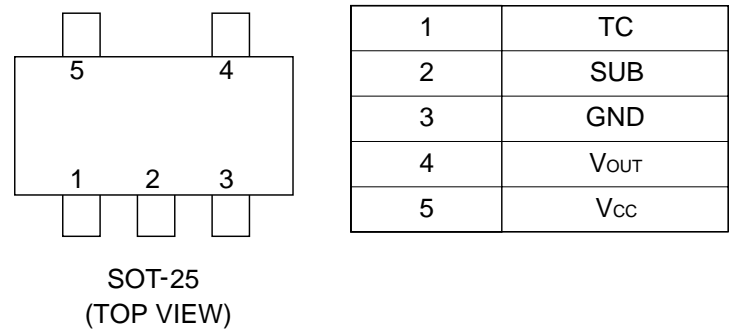
■ NJM2534V (MAIN ASSY : IC1503)

- Video Switch IC
- Block Diagram and Pin Function

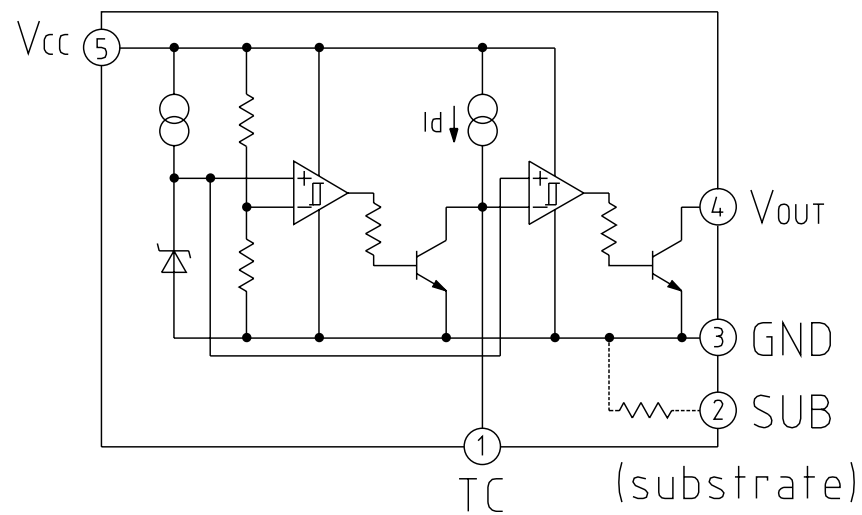


■ PST9222N (MAIN ASSY : IC1602)

- Reset IC
- Pin Function



- Equivalent Circuit

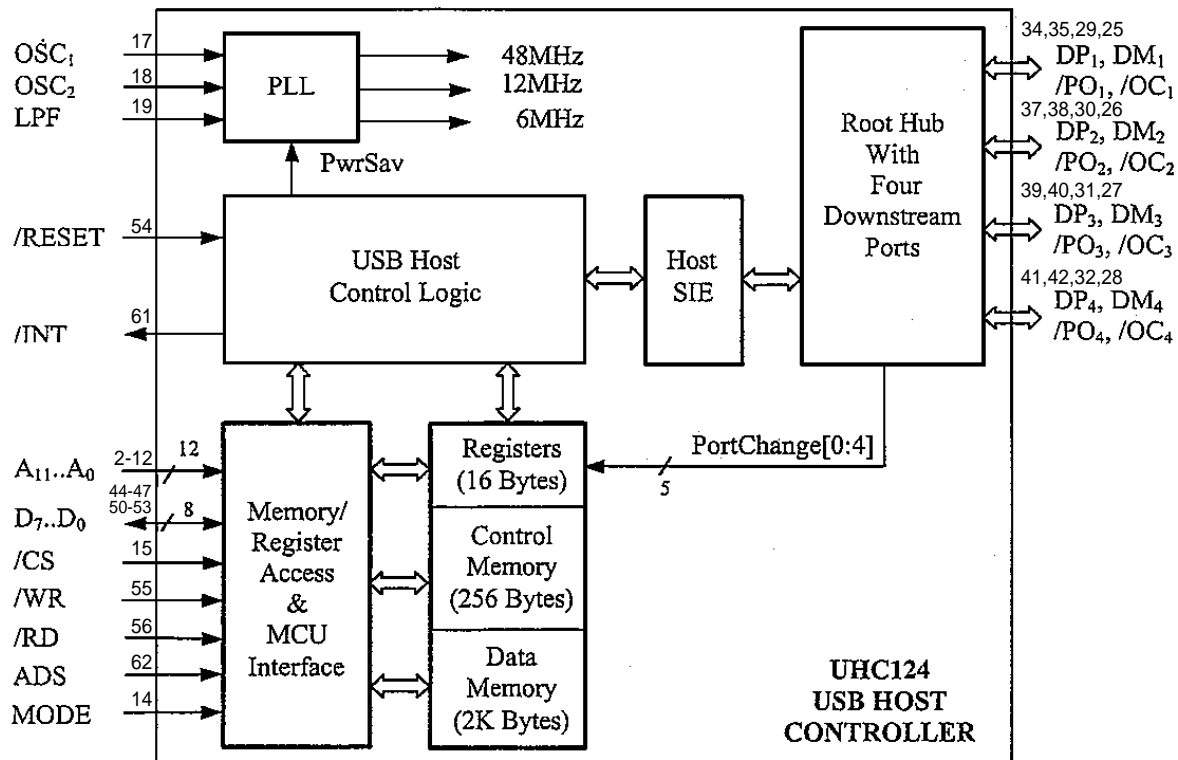


BD-V3501, BD-V3510 BD-V3511

■ UHC124 (MAIN ASSY : IC1801)

• USB Driver

• Block Diagram



• Pin Function

1	V _{DD}	17	OSC ₁	33	V _{DD}	49	V _{SS}
2	A ₀	18	OSC ₂	34	DP ₁	50	D ₄
3	A ₁	19	LPF	35	DM ₁	51	D ₅
4	A ₂	20	V _{DD}	36	V _{SS}	52	D ₆
5	A ₃	21	TEST ₀	37	DP ₂	53	D ₇
6	A ₄	22	TEST ₁	38	DM ₂	54	/RESET
7	A ₅	23	TEST ₂	39	DP ₃	55	/WR
8	A ₆	24	TEST ₃	40	DM ₃	56	/RD
9	A ₇	25	/OC ₁	41	DP ₄	57	TMS ₀
10	A ₈	26	/OC ₂	42	DM ₄	57	TMS ₁
11	A ₉	27	/OC ₃	43	TEST ₄	59	TMS ₂
12	A ₁₀	28	/OC ₄	44	D ₀	60	TMS ₃
13	A ₁₁	29	/PO ₁	45	D ₁	61	/INT
14	MODE	30	/PO ₂	46	D ₂	62	ADS
15	/CS	31	/PO ₃	47	D ₃	63	GNDP
16	V _{SS}	32	/PO ₄	48	V _{DD}	64	V _{SS}

7.3 MOUNTING CONDITION FOR BGA AND NOTE FOR HANDLING UPC1663GV

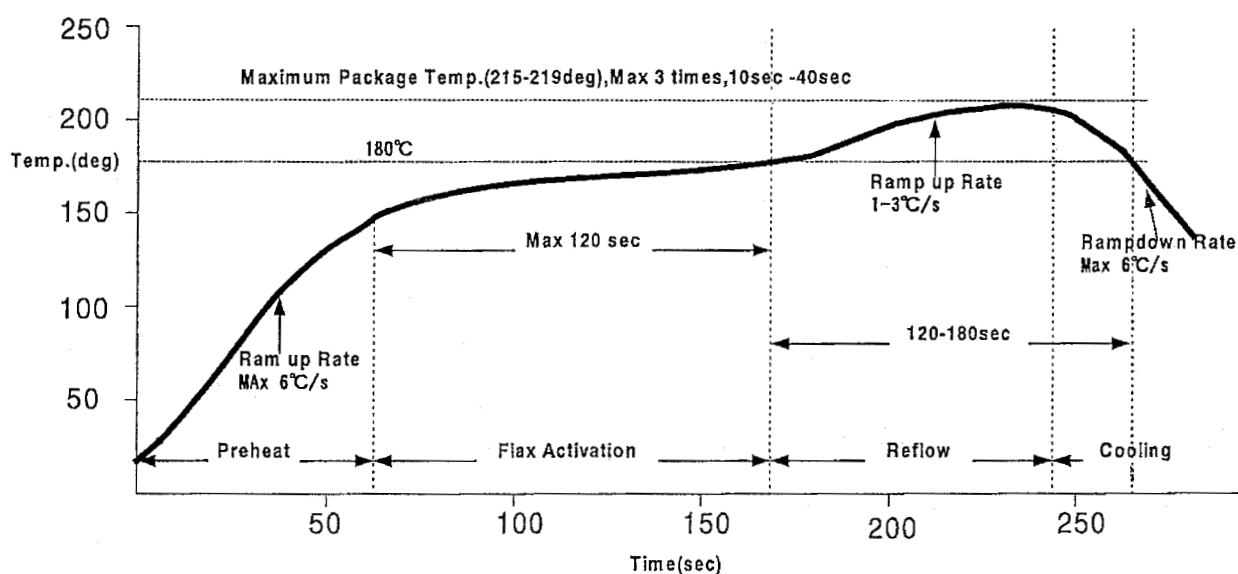
1. MOUNTING CONDITION FOR BGA

This item describes about the mounting condition for BGA chip BCM7100KPB(IC1101 MAIN ASSY).

■ Recommended mounting condition

- Tolerance Level against the humidity : Level3
- Keeping Condition after opening the dry-pack : <30°C/60%RH(Floor Time:168hours)
- Baking Condition : 125°C/24hours
- Reflow Condition :

RampUp Rate	Max+6°C/sec
Temperature maintained at 125(+/- 25°C)/max120sec	
Temperature maintained above 180°C	120 – 180sec
Time at maximum temperature	10 – 40sec
Maximum temperature	215 – 219°C
Ramp-down rate	max -6°C/sec



■ Notes for handling BGA chip

This chip is a very hygroscopic product. Pay attention for the following item.

1. The keeping period of the dry-pack is 12 months with the condition of under 40°C/under RH90%.
2. After opening the dry-pack, mount under the recommended condition within 168hours in the state of under 30°C/under RH60%.
Or keep under the condition of under RH20%.
3. Prebake the chip when it agrees the following condition before mounting.
 - When the humidity display sheet in the packing shows over 20% at 23°C ± 5°C.
 - When it does not meet the above condition 2.
4. When the prebaking is necessary, the recommended condition is 125°C +/- 5°C/24hours.

2. NOTE FOR HANDLING UPC1663GV

This item describes about the note for handling UPC1663GV(IC1001 MAIN ASSY).

■ Note for handling UPC1663GV

UPC1663GV is very weak to the electrostatic resisting pressure.

The destructive voltage against the Electro-static is about 70 volts or more.

There is fear to be destroyed by especially the influence from the human body.

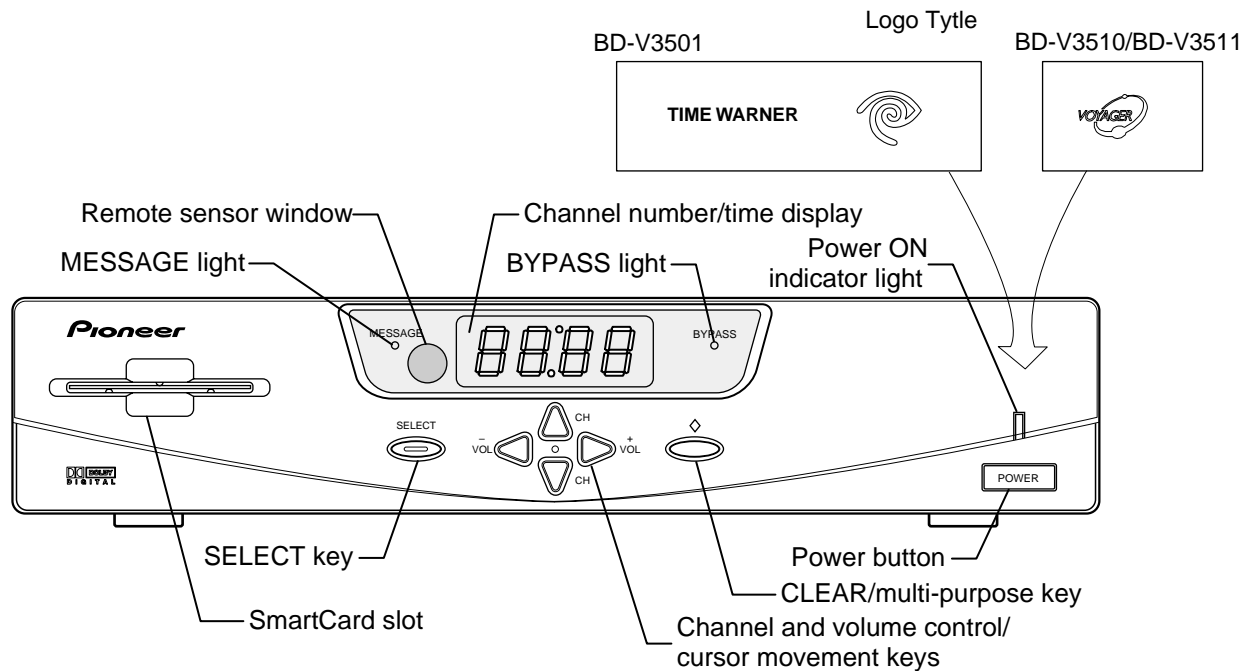
Take full care for handling UPC1663GV.

Refer to P11 (Schematic Diagram) and P36 (PCB Connection Diagram).

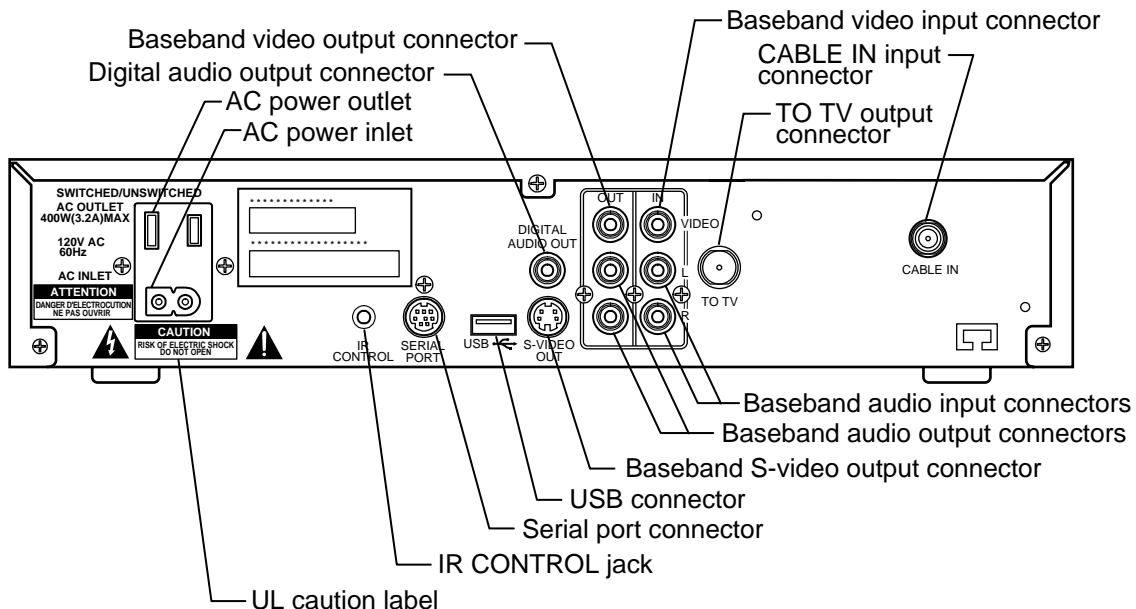
8. PANEL FACILITIES AND SPECIFICATIONS

8.1 PANEL FACILITIES

■ FRONT PANEL



■ REAR PANEL



■ FEATURE IDENTIFICATION

FRONT PANEL

BYPASS LIGHT

Lights when the optional RF Bypass Adapter module is switched to bypass mode. When in bypass mode, the Adapter sends cable signals directly to the TV.

CHANNEL AND VOLUME CONTROL/ CURSOR MOVEMENT KEYS

These keys have different functions, depending on what is displayed on the TV screen. During normal TV viewing, the ▲/▼ (up/down) arrows change the channel by stepping up or down one channel at a time.

The ◀/▶ (left/right) arrows adjust the sound level up or down. When a menu is displayed, these same keys move the cursor up or down, left or right.

CHANNEL NUMBER/TIME DISPLAY

Shows channel number or current time. Also shows “rEC” when recording is taking place.

CLEAR/MULTI-PURPOSE KEY

When a menu is displayed, returns you to normal TV viewing. May also have special functions as described in the on-screen display.

MESSAGE LIGHT

Blinks when the BD-V3500 receives a message for you from the cable company, or an E-mail message from another person.

POWER BUTTON

Turns on the BD-V3500 and lights the Power-On indicator Light when pressed, or turns all off when pressed again. May also control the AC Power Outlet, depending on the BD-V3500's settings. (Refer to the separate operating instruction manual.)

POWER ON INDICATOR LIGHT

Lights to show the BD-V3500 is turned on.

REMOTE SENSOR WINDOW

Receives signals from the remote control.

IMPORTANT:

Do not block this window.

SELECT KEY

Selects the desired action highlighted on the screen.

SMARTCARD SLOT

Accepts a special card provided by your cable company. This card is not always needed for BD-V3500 operation, unless required by the cable company.

REAR PANEL

AC POWER INLET

Connects to an unswitched 120-volt AC outlet, using the detachable power cord (included).

AC POWER OUTLET

Provides AC power to the connected TV.

CAUTION:

Connect only the TV AC power cord to this outlet.

This outlet allows 400 watts maximum power consumption. To prevent the risk of fire or damage to the Home Terminal, do not connect any kind of equipment of more than 400 watts power use, or any other equipment (toaster, hair dryer, etc.).

BASEBAND AUDIO INPUT CONNECTORS

Connects to the stereo (L and R) audio outputs of a DVD or LaserDisk player. When the BD-V3500 is off, this audio goes to the Baseband Audio Output Connectors.

BASEBAND AUDIO OUTPUT CONNECTORS

Connects to the stereo (L and R) audio inputs of a VCR, audio amplifier, or TV. Requires audio cables with male phono (RCA) plugs (not included).

BASEBAND S-VIDEO OUTPUT CONNECTOR

Connects to the S-video input of a TV or VCR. Requires special S-video cable (not included). If your TV or VCR doesn't have a similar S-video jack, use the standard baseband video connection instead.

BASEBAND VIDEO INPUT CONNECTOR

Connects to the video output terminal on a DVD or LaserDisk player. During power standby status, the video is output to the output connector.

BASEBAND VIDEO OUTPUT CONNECTOR

Connects to the standard baseband video input of a VCR or TV. Requires video cables with male phono (RCA) plugs (not included).

CABLE IN INPUT CONNECTOR

Connects to the incoming cable service. Requires 75-ohm coaxial cable with male “F”-type connectors (not included).

DIGITAL AUDIO OUTPUT CONNECTOR

Connects to the digital audio input on your stereo amplifier, receiver or digital audio decoder.

SERIAL PORT CONNECTOR

Connects to the optional VCR Commander.

TO TV OUTPUT CONNECTOR

Connects to the TV's VHF antenna input. Requires 75-ohm coaxial cable with male “F”-type connectors.

USB CONNECTOR

Connects to USB (Universal Serial Bus)-equipped options such as a wireless keyboard infrared receiver.

IR CONTROL JACK

Jack for connecting the IR CONTROL CABLE (option).

To prevent malfunction, do not connect a cable other than the dedicated IR CONTROL CABLE.

The IR CONTROL CABLE controls recording of programs on your VCR through the BD-V3500 program guide. Refer to the IR CONTROL CABLE instruction manual.

8.2 SPECIFICATIONS

RF

Receive Frequency	54 to 856MHz
Output Channel	3/4 CH
Output Level at 'TO TV'	11dBmV +2/-3dB
Frequency Stability at 'TO TV'	+/-150KHz max.
Output Return Loss at 'TO TV'	12dB min.
Input Return Loss at 'CABLE IN'	6dB min.
Spurious Signal at 'CABLE IN'	-30dBmV max..(50~856MHz)
Spurious Signal at 'TO TV'	-15dBmV max..(50~220MHz)
Modulation Technic (Digital Input)	ITU-T J.83 Annex B 64QAM and 256 QAM
64QAM Input Level (Digital Input)	-15 to +14 dBmV
256QAM Input Level (Digital Input)	-9 to +14 dBmV

Analog BaseBand Video

Video S/N	40dB min.
Response Flatness	2dBp-p max.
Chroma Delay	-50ns ± 100nsec

Digital BaseBand Video

Video S/N	50dB min.
Differential Gain	10% max.
Differential Phase	5deg max.
Response Flatness	2dBp-p max.
Chroma Delay	-50ns ± 100nsec
Non-linearity	+/-5% max.

Analog BaseBand Audio

Audio S/N	45dB min.
-----------------	-----------

Digital BaseBand Audio

Audio S/N	72dB min.
Stereo Channel Separation	60dB min.
Frequency Response	+/-1.0dB max.

Data communication

QPSK Output Frequency (Up stream)	8 to 26.5MHz
QPSK Output level (Up stream)	+55 dBmV min.
QPSK Input Frequency (Down stream)	70~130MHz
QPSK Input Level (Down stream)	-16 to +15 dBmV
Smart Card	ISO7816
Digital Audio	IEC958
Serial Port	UART
USB	V1.1

General

Safety Requirement ... (BD-V3501) UL Approved (UL1492) (BD-V3510) UL Approved (UL1492) CSA Approved (C22.2 No 1.(98)) (BD-V3511) UL Approved (UL1492) CSA Approved (C22.2 No 1.(98))	
AC Input	AC120V/60Hz
Power Consumption	22W
Dimension	320 (W) × 253 (D) × 68.5 (H) mm
Weight	2.1Kg (Without Package)

Note :Specification and the desine is subject to possible modification
without notice due to improvement.